BASIC NATIONAL EDUCATION

Report of the
ZAKIR HUSAIN COMMITTEE
and
THE DETAILED SYLLABUS
with
a foreword by
MAHATMA GANDHI.

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FOREWORD.

The fact that the first one thousand copies of this pamphlet have been sold out shows that what Dr. Zakir Husain and his committee have called Basic National Education is exciting fair interest in India and outside. A more correct though much less attractive description would be Rural National Education through village handicrafts 'Rural' excludes the so-called higher or English education. 'National' at present connotes truth and non-violence. And 'through village handicrafts' means that the framers of the scheme expect the teachers to educate village children in their villages so as to draw out all their faculties through some selected village handicrafts in an atmosphere free fromsuper- imposed restrictions and interference. Thus considered, the scheme is a revolution in the education of village children. It is in no sense an importation from the West. If the reader bears this fact in mind he will be better able to follow the scheme in the preparation of which some of the best educationists have given their undivided attention.

Segaon, Wardha
28th. May 1938.

M. K. GANDHI.

RESOLUTIONS PASSED AT THE WARDHA NATIONAL EDUCATION CONFERENCE 22ND & 23RD OCTOBER, 1937.

1 That in the opinion of this Conference free and compulsory education be provided for seven years on a nation-wide scale

2. That the medium of instruction be the mother-tongue.

3. That the Conference endorses the proposal made by Mahatma Gandhi that the process of education throughout this period should centre in some form of manual and productive work, and that all the other abilities to be developed or training to be given should, as far as possible, be integrally related to the central handicraft chosen with due regard to the environment of the child

4. That the Conference expects that this system of education will be gradually able to cover the remuneration of the teachers

REPORT

OF

DR. ZAKIR HUSAIN COMMITTEE.

PRESIDENT

Dr. Zakir Husain.

MEMBERS.

K. Gulam Saiyidain.	Kishorlal Mashruwala.
K. T. Shah.	J. C. Kumarappa.
Vinoba Bhave.	Shrikrishnadas Jaju.
Kaka Kalelkar.	Shrimati Asha Devi.

Convener

E. W. ARYANAYAKAM.

Delhi, 2-12-1937

MAHATMA GANDHI,

President,

All India National Education Conference,

WARDHA.

MAHATMAJI,

I have the honour to submit herewith the report of the Committee appointed by the Wardha Conference on the 23rd of October 1937 to formulate a scheme of basic education on the lines suggested by the resolution of that Conference.

The members of the Committee present at Wardha had a preliminary discussion with you on the 24th October. The Committee met at Wardha on the 2nd and 3rd of November when all the members attended except Professor K. T. Shah who was prevented by urgent work from coming. They met again at Wardha on the 22nd, 23rd and 24th of November. Professor Saiyidain could not come, and Professor K. T. Shah could be present only on the first day of the meeting. You will be pleased to know that the discussions were conducted in the most cordial spirit and every member was anxious to contribute his very best. We recorded no evidence, but the Committee are extremely grateful to

the numerous friends who sent us their views on the problems engaging our attention.

We are fully conscious of the shortcomings of the report we are submitting. Our own limitations as well as the limitations of time did not permit us to do better We have been able, for instance, to include a detailed syllabus only for the craft of Spinning and Weaving. If time had permitted, we should have very much liked to include a similar scheme for more crafts. For we are anxious to avoid the possible impression that we do not attach equal importance to other crafts with similar or better educational possibilities. When at a later date we submit to you a detailed scheme of correlated grade placements, as desired by you, we hope also to include a detailed scheme of Agriculture and Gardening as the basic craft.

We are thankful to the many Provincial Governments for sending us all the relevant literature, and specially to the Government of the Central Provinces for deputing an officer of the Educational and an officer of the Agricultural Department to help us whenever we needed their help during the course of our deliberations. Sjt. Aryanayakam and Shrimati Ashadevi, though members of the Committee, deserve to be specially thanked for facilitating the work of the Committee by their efficient handling of the voluminous correspondence and making all necessary arrangements for the meetings we held.

I am personally very grateful to the Staff of the Teachers' Training College, Muslim University,

Aligarh, for their whole-hearted co-operation and for permitting me to draw freely on their expert knowledge and precious time.

We submit this report to you in the sincere hope that under your guidance the scheme presented in it may prove to be the beginning of a sound educational system in our country.

Respectfully
ZAKIR HUSAIN
Chairman.

SECTION I. BASIC PRINCIPLES

The Existing Educational System.

Indian opinion is practically unanimous in condemning the existing system of education in the country In the past it has failed to meet the most urgent and pressing needs of national life, and to organise and direct its forces and tendencies into proper channels To-day, when quick and far-reaching changes are reshaping both national and international life and making new demands on the citizens, it continues to function listlessly and apart from the real currents of life, unable to adapt itself to the changed circumstances. It is neither responsive to the realistic elements of the present situation, nor inspired by any life-giving and creative ideal It does not train individuals to become useful productive members of society, able to pull their own weight and participate effectively in its work. It has no conception of the new co-operative social order which education must help to bring into existence, to replace the present competitive and inhuman regime based on exploitation and violent force. There is, therefore, a demand from all sides for the replacement of the present system of education by a more constructive and human system, which will be better integrated with the needs and ideals of national life, and better able to meet its pressing demands.

Any scheme of education designed for Indian children will in some respects radically differ from that adopted in the West. For, unlike the

West. in India the nation has adopted non-violence, as the method of peace, for achieving all-round freedom Our children will therefore need to be taught the superiority of non-violence over violence.

Mahatma Gandhi's Leadership—

In this field, as in so many others, far-sighted leadership has come at this critical juncture from Mahatma Gandhi, who has thrown himself wholeheartedly and devotedly into the question of evolving a system of education which will be in harmony with the genius of the Indian people, and solve the problem of mass education in a practicable way and within as short a time as possible. The basic idea of his scheme, as expounded by him in his articles in HARIJAN and at the Wardha Educational Conference, is that education, if sound in its principles, should be imparted through some craft or productive work, which should provide the nucleus of all the other instruction provided in the school Thus craft, if taught efficiently and thoroughly, should enable the school to pay towards the cost of its teaching staff. According to him, this would also help the State to introduce immediately the scheme of free and compulsory basic education. Failing this, in the existing political and financial condition of the country, the cost of this education would be prohibitive

Craft Work in Schools—

Modern educational thought is practically unanimous in commending the idea of educating children through some suitable form of productive work.

This method is considered to be the most effective approach to the problem of providing an *integral* all-sided education.

Psychologically, it is desirable, because it relieves the child from the tyranny of a purely academic and theoretical instruction against which its active nature is always making a healthy protest. It balances the intellectual and practical elements of experience, and may be made an instrument of educating the body and the mind in co-ordination. The child acquires not the superficial literacy which implies, often without warrant, a capacity to read the printed page, but the far more important capacity of using hand and intelligence for some constructive purpose. This, if we may be permitted to use the expression, is "*the literacy of the whole personality*".

Socially considered, the introduction of such practical productive work in education, to be participated in by all the children of the nation, will tend to break down the existing barriers of prejudice between manual and intellectual workers, harmful alike for both. It will also cultivate in the only possible way a true sense of the dignity of labour and of human solidarity—an ethical and moral gain of incalculable significance.

Economically considered, carried out intelligently and efficiently, the scheme will increase the productive capacity of our workers and will also enable them to utilise their leisure advantageously.

From the strictly educational point of view, greater concreteness and reality can be given to the knowledge acquired by children by making some significant craft the basis of education. Knowledge will thus become related to life, and its various aspects will be correlated with one another.

Two Necessary Conditions—

In order to secure these advantages it is essential that two conditions should be carefully observed First, the craft or productive work chosen should be rich in educative possibilities. It should find natural points of correlation with important human activities and interests, and should extend into the whole content of the school curriculum. Later in the report, in making our recommendations on the choice of basic crafts, we have given special attention to this point, and we would urge all who are in any way concerned with this scheme to bear this important consideration in mind. The object of this new educational scheme is NOT primarily the production of craftsmen able to practise some craft *mechanically,* but rather the exploitation for educative purposes of the resources implicit in craft work. This demands that productive work should not only form a part of the school curriculum—its craft side —but should also inspire the *method* of teaching all other subjects. Stress should be laid on the principles of co-operative activity, planning, accuracy, initiative and individual responsibility in learning. This is what Mahatma Gandhi means when he says: "Every handicraft has to be taught not merely

mechanically as is done to-day, but scientifically. That is to say, the child should learn the why and wherefore of every process''—of course through personal observation and experience. By merely adding to the curriculum one other subject—weaving, spinning, or carpentry—while all other subjects are still taught in the traditional way we shall, we are convinced, encourage passive assimilation and the division of knowledge into unintelligible water-tight compartments, and thus defeat the real purpose and spirit of this scheme.

The Ideal of Citizenship Implicit in the Scheme—

We are also anxious that teachers and educationists who undertake this new educational venture should clearly realise the ideal of citizenship inherent in it. In modern India, citizenship is destined to become increasingly democratic in the social, political, economic and cultural life of the country. The new generation must at least have an opportunity of understanding its own problems and rights and obligations. A completely new system is necessary to secure the minimum of education for the intelligent exercise of the rights and duties of citizens. Secondly, in modern times, the intelligent citizen must be an active member of society, able to repay in the form of some useful service what he owes to it as a member of an organised civilised community. An education which produces drags and parasites—whether rich or poor—stands condemned. It not only impairs the productive capacity and efficiency of society but also engenders a

dangerous and immoral mentality. This scheme is designed to produce *workers,* who will look upon all kinds of useful work—including manual labour, even scavenging—as honourable, and who will be both able and willing to stand on their own feet.

Such a close relationship of the work done at school to the work of the community will also enable the children to carry the outlook and attitudes acquired in the school environment into the wider world outside. Thus the new scheme which we are advocating will aim at giving the citizens of the future a keen sense of personal worth, dignity and efficiency, and will strengthen in them the desire for self-improvement and social service in a co-operative community.

In fine, the scheme envisages the idea of a co-operative community, in which the motive of social service will dominate all the activities of children during the plastic years of childhood and youth. Even during the period of school education, they will feel that they are directly and personally co-operating in the great experiment of national education.

The Self-supporting Basis of the Scheme—

It seems necessary to make a few remarks about the "self-supporting" aspect of the scheme, as this has occasioned considerable misunderstanding. We wish to make it quite clear that we consider the scheme of basic education outlined by the Wardha Conference and here elaborated, to be sound in itself. Even if it is not "self-supporting" in any

sense, it should be accepted as a matter of sound educational policy and as an urgent measure of national reconstruction. It is fortunate, however, that this good education will also incidentally cover the major portion of its running expenses. We hope to show presently that within the scope prescribed by the Wardha Conference, it can do so to a considerable extent (*see* the detailed syllabus of spinning and weaving). The syllabus gives the figures of the contribution to be made towards its own current expenditure by a school with the basic craft of spinning and weaving

So far as this craft was concerned we had little difficulty in making these calculations, as expert work in this line has been going on for the last seventeen years under Mahatma Gandhi's guidance. The wages in this case have been calculated on the basis of the standard fixed by the All-India Spinners' Association in Maharashtra. In the case of other crafts, calculations may be made on the basis of the prevailing market rates. Mahatmaji has definitely suggested that the State should guarantee to take over, at prices calculated as above, the product of the work done by its future citizens in school, a view which we heartily endorse. " every school can be made self-supporting, the condition being that the State takes over the manufactures of these schools " (HARIJAN, 31 July 1937).

Apart from its financial implications, we are of opinion that a measureable check will be useful in ensuring thoroughness and efficiency in teaching and in the work of the students Without some such

check, there is great danger of work becoming slack and losing all educative value. This is only too obvious from the experience of educationists who from time to time have introduced "manual training" or other "practical activities" in their schools.

But here we must sound a necessary note of warning There is an obvious danger that in the working of this scheme the economic aspect may be stressed at the sacrifice of the cultural and educational objectives. Teachers may devote most of their attention and energy to extracting the maximum amount of labour from children, while neglecting the intellectual, social and moral implications and possibilities of craft training. This point must be constantly kept in mind in the training of teachers as well as in the direction of the work of the supervisory staff and must colour all educational activity.

SECTION II. OBJECTIVES.

It has not been possible, during the short time at our disposal, to prepare a detailed correlated programme of work for the whole period of seven years. However, we have tried to put down, under separate heads, the objectives of the new schools. In the future each Provincial Board of Education must include an expert curriculum maker, who will be responsible for preparing the detailed correlated programme for the complete seven years' course of studies. As a result of their valuable observations in the new schools, the teachers, working under competent supervision and guidance, will be able to

supply the details which will serve as a basis for this work. We are, however, attempting to make a correlated syllabus in broad outlines which will form an annexe to this report.

MAIN OUTLINES OF THE SEVEN YEARS' COURSE OF BASIC EDUCATION.

I. The Basic Craft.

Such reasonable skill should be attained in the handicraft chosen, as would enable the pupil to pursue it as an occupation after finishing his full course.

The following may be chosen as basic crafts in various schools:—

a Spinning and weaving.
b. Carpentry.
c Agriculture
d. Fruit and vegetable gardening.
e Leather work.
f. Any other craft for which local and geographical conditions are favourable and which satisfies the conditions mentioned above (p 14).

Even where an industry other than spinning and weaving or agriculture is the basic craft, the pupils will be expected to attain a minimum knowledge of carding and spinning with the takli, and a practical acquaintance of elementary agricultural work in the local area

II. Mother Tongue.

The proper teaching of the mother tongue is the foundation of all education Without the capacity to speak effectively and to read and write correctly

and lucidly, no-one can develop precision of thought or clarity of ideas. Moreover, it is a means of introducing the child to the rich heritage of his people's ideas, emotions and aspirations, and can therefore be made a valuable means of social education, whilst also instilling right ethical and moral values. Also, it is a natural outlet for the expression of the child's aesthetic sense and appreciation, and if the proper approach is adopted, the study of literature becomes a source of joy and creative appreciation. More specifically, by the end of the seven years' course, the following objectives should be achieved:

1. The capacity to converse freely, naturally and confidently about the objects, people and happenings within the child's environment. This capacity should gradually develop into:

2. The capacity to speak lucidly, coherently and relevantly on any given topic of every-day interest.

3. The capacity to read silently, intelligently and with speed written passages of average difficulty. (This capacity should be developed at least to such an extent that the student may read newspapers and magazines of every-day interest).

4. The capacity to read aloud—clearly, expressively and with enjoyment—both prose and poetry (The student should be able to discard the usual lifeless, monotonous and bored style of reading).

5. The capacity to use the list of contents and the index and to consult dictionaries and reference

books, and generally to utilise the library as a source of information and enjoyment

6. The capacity to write legibly, correctly, and with reasonable speed

7 The capacity to describe in writing, in a simple and clear style, every-day happenings and occurrences, *e g.*, to make reports of meetings held in the village for some co-operative purpose.

8. The capacity to write personal letters and business communications of a simple kind

9. An acquaintance with, and interest in, the writings of standard authors, through a study of their writings or extracts from them.

III. Mathematics.

The objective is to develop in the pupil the capacity to solve speedily the ordinary numerical and geometrical problems arising in connection with his craft and with his home and community life. Pupils should also gain a knowledge of business practice and book-keeping.

We feel that these objectives can be attained by a knowledge of and adequate practice in·

The four simple rules; the four compound rules; fractions; decimals; the rule of three; the use of the unitary method, interest; elements of mensuration; practical geometry, the rudiments of book-keeping.

The teaching should not be confined merely to the facts and operations of number. It should be close-

ly co-ordinated with life situations arising out of the basic handicraft and out of the great variety of actual problems in the life of the school and the community. Measurements of quantities and values in these connections would supply ample opportunity for the development of the reasoning capacities of the pupils

IV. Social Studies.

The objectives are:

1. To develop a broad human interest in the progress of mankind in general and of India in particular.

2. To develop in the pupil a proper understanding of his social and geographical environment; and to awaken the urge to improve it.

3. To inculcate the love of the motherland, reverence for its past, and a belief in its future destiny as the home of a united co-operative society based on love, truth and justice.

4. To develop a sense of the rights and responsibilities of citizenship.

5. To develop the individual and social virtues which make a man a reliable associate and trusted neighbour.

6. To develop mutual respect for the world religions.

A course in history, in geography, in civics and in current events, combined with a reverential study

of the different religions of the world showing how in essentials they meet in perfect harmony, will help to achieve these objectives. The study should begin with the child's own environment and its problems. His interest should be awakened in the manifold ways in which men supply their different wants. This should be made a starting point to arouse their curiosity about the life and work of men and women.

1. A simple outline of Indian history should be given. The chief landmarks in the development of the social and cultural life of the people should be stressed, and the gradual movement towards greater political and cultural unity be shown. Emphasis should be laid on the ideals of love, truth and justice, of co-operative endeavour, national solidarity, and the equality and brotherhood of man. The treatment of the subject should be chiefly biographical in the lower, and cultural and social in the upper grades Care should be taken to prevent pride in the past from degenerating into an arrogant and exclusive nationalism. Stories of the great liberators of mankind and their victories of peace should find a prominent place in the curriculum. Emphasis should be laid on lessons drawn from life showing the superiority of truth and non-violence, in all its phases and its concomitant virtues, over violence and deceit. The history of the Indian national awakening, combined with a living appreciation of India's struggle for social, political and economic freedom, should prepare the pupils to bear their share of the burden joyfully and to stand the strain and stress of the period of transition. Celebrations of national

festivals and of the "National Week" should be a feature in the life of every school.

2 The pupils should become acquainted with the public utility services, the working of the panchayat and the co-operative society, the duties of the public servants, the constitution of the District Board or Municipality, the use and significance of the vote, and with the growth and significance of representative institutions. Training under this head should be as realistic as possible and should be brought into close relationship with actual life. Self-governing institutions should be introduced in the school. The pupils should be kept in intelligent touch with important current events through the co-operative study of some paper, preferably brought out by the school community.

3. The course in social studies should also include a study of world geography in outline, with a fuller knowledge of India and its relations with other lands It should consist of:

(*a*) Study of the plant, animal and human life in the home region and in other lands as controlled by geographical environment (stories, description, picture-study, practical observation and discussion, with constant reference to local facts and phenomena).

(*b*) Study and representation of weather phenomena; (mainly outdoor work, *e. g.* direct observation of the sun; changes in the height of the noonday sun at different times of the year; reading of the weather-vane; thermometer and barometer; methods of recording temperature and pressure;

records of rainy and dry days and of the rainfall; prevailing wind directions; duration of day and night in different months, etc.).

(*c*) Map-study and map-making, the world a globe, study of local topography; making of and study of plans of the neighbourhood, recognition of conventional signs, use of the atlas and its index.

(*d*) Study of the means of transport and communication correlated with industries and life

(*e*) Study of occupations, local agriculture and industry (visits to fields and factories), economic self-sufficiency and inter-dependence of different regions; types of agriculture and industry favoured by geographical environment; the principal industries of India

V. General Science.

The objectives are.

1. To give pupils an intelligent and appreciative outlook on nature.

2 To form in the pupils habits of accurate observation and of testing experience by experiment.

3 To enable them to understand the important scientific principles exemplified in

(a) The natural phenomena around

(b) In the application of science to the service of man

4. To introduce them to the more important incidents in the lives of the great scientists whose sacrifices in the cause of truth make a powerful appeal to the growing mind.

The curriculum should include the following topics from various sciences:

A. NATURE STUDY

(*a*) A knowledge of plants, crops, animals and birds in the environment.

(*b*) A knowledge of the changes of seasons and their effect on the activity of plants, animals, birds and man.

(*c*) A knowledge of crops in different seasons.

B BOTANY

(*a*) Different parts of plants and their functions.

(*b*) Processes of germination, growth and propagation.

(*c*) Work on the school garden and the fields around to give the pupils an understanding of the effects of differing conditions of moisture, heat and light, and of the different qualities of seeds and manures.

C. ZOOLOGY

A study of germs, insects, reptiles and birds as friends and foes of man.

D. PHYSIOLOGY

The human body, its organs and functions.

E. HYGIENE

(*a*) Personal hygiene; cleanliness of teeth, tongue, nails, eyes, hair, nose, skin, clothes.

(*b*) Cleanliness of the home and the village; sanitation; disposal of night-soil.

(*c*) Pure water; the village well.

(*d*) Pure air; the function of trees in its purification; proper breathing.

(*e*) Food, hygienic and unhygienic; balanced diets.

(*f*) First aid and simple remedies.

(*g*) Common infections; contagious diseases; how to safeguard against them.

(*h*) Purity of conduct as a preservative of health.

F. PHYSICAL CULTURE

Games, athelctics, drill (Deshi games to be encouraged).

G. CHEMISTRY

of air, water, acids, alkalis and salts.

H. A KNOWLEDGE OF THE STARS

showing direction and time at night.

I. STORIES

of the great scientists and explorers and of their contributions to human well-being.

VI. Drawing.

The objectives are:

1. To train the eye in the observation and discrimination of forms and colours.

2. To develop the memory for forms.

3. To cultivate a knowledge of and appreciation for the beautiful in nature and in art

4. To draw out the capacity for tasteful design and decoration.

5 To develop the capacity to make working drawings of objects to be constructed

These objectives can be obtained by:

(*a*) Drawings made by children to illustrate read or observed material

(*b*) Object and memory drawings, *e. g.*, drawings of plants and of animal and human forms (correlated with work in general science, handicraft, etc.).

3 Designing.

4. Scale drawing, graphs and pictorial graphs.

The work in drawing during the first four years should be correlated chiefly with work in reading and pictorial representation in nature study and the craft During the last three years emphasis may be laid on design and decoration and mechanical drawing, so as to enable pupils to make correct working drawings

VII. Music.

The objective is to teach the pupils a number of beautiful songs and to cultivate in them a love for beautiful music The child's natural sense for rhythm should be developed by teaching him to keep his own time by beating with the hand. Walking in time to a fixed rhythm can be a great aid in achieving this.

Care should be taken to select only the best and most inspiring songs and the artistic interpretation of some healthy and elevating theme Special emphasis should be placed on group or choral singing.

VIII. Hindustani.

The object of including Hindustani as a compul-

sory subject in the school curriculum is to ensure that all the children educated in these national schools may have a reasonable acquaintance with a common "*lingua franca.*" As adult citizens they should be able to co-operate with their fellow-countrymen belonging to any part of the country. In teaching the language the teacher should in various ways quicken in the students the realisation that this language is the most important product of the cultural contact of the Hindus and Muslims in India. It is the repository—in its more advanced forms—of their best thoughts and aspirations They should learn to take pride in its richness and vitality and should feel the desire to serve it devotedly.

In Hindustani-speaking areas this language will be the mother-tongue, but the students as well as the teachers will be required to learn both the scripts, so that they may read books written in Urdu as well as in Hindi In non-Hindustani-speaking areas, where the provincial language will be the mother-tongue, the study of Hindustani will be compulsory during the 5th and 6th years of school life, but the children will have the choice of learning either one or the other script. However, in the case of teachers who have to deal with children of both kinds, knowledge of both the scripts is desirable.

At any rate, every public school must make adequate provision for the teaching of both scripts.

In general outlines, the syllabus of studies will be the same for boys and girls up to the 5th grade of the school. In grades 4 and 5 the syllabus in general science should be so modified as to include

Domestic Science for girls. In grades 6 and 7 the girls will be allowed to take an advanced course in domestic science in place of the basic craft.

SECTION III. TRAINING OF TEACHERS.

The proper training of teachers is perhaps the most important condition for the success of this scheme. Even in normal circumstances the quality of the teachers generally determines the quality of the education imparted. When a radical reconstruction of the entire educational system is contemplated, the importance of the teachers who work out these changes is greatly accentuated.

It is therefore essential that these teachers should have an understanding of the new educational and social ideology inspiring the scheme combined with enthusiasm for working it out.

Since they are to teach not only certain academic subjects, but also crafts, their training should include a reasonably thorough mastery of the processes and technique of certain basic crafts.

Their methods of teaching and approach to subject matter will be different They will deal with the various subjects not as isolated and mutually exclusive branches of knowledge, but as inter-related aspects of a growing and developing activity which provides the focus of their correlation. For this purpose it is essential that teachers should have some training in formulating projects and schemes

of correlated studies, and thus link up life, learning and activity.

They must have an intelligent interest in the life and activities of their human environment and a thorough grasp of the intimate relationship between school and society.

Besides these points—which must be particularly stressed if the new scheme is to be worked in the spirit in which it is conceived—the teachers' training curriculum should of course include the other necessary capacities and subjects.

In order to gain admission to the training institution, the candidate must have read up to the Matriculation Standard in some national or recognised Government institution, or must have had at least two years' teaching experience after passing the Vernacular Final or some equivalent examination.

Training (covering a period of three years)
Curriculum for a Complete Course of Teachers'

1. *a.* Growing, picking, carding of cotton (or wool), spinning of yarn and making of warp.

b. Mechanics of the spinning wheel (or other instruments and tools involved in the exercise of the basic craft selected).

c. Economics of village industries with special reference to the selected craft.

d. Elementary carpentry involved in the selected craft.

2. Training in one of the following basic crafts.

a. Spinning and weaving
c. Vegetable and fruit gardening.
b. Agriculture.
d. Carpentry.
e. Toy-making.
f. Leather work
g. Paper-making.

or any other craft which may be considered suitable for any particular locality.

3 Principles of education, which should comprise:

a. The basic idea of education through productive work.

b. The relation of the school to the community.

c. Simple outline of child psychology (treated as concretely as possible) and of the psychology of acquiring technical skill.

d. Methods of teaching, with special reference to the formulation and development of schemes of correlated studies.

e. Objective of new education, studied with reference to the actual conditions of life in the country.

4. An outline course in physiology, hygiene, sanitation and dietetics, referring specially to the actual problems of village life and aiming at direct, practical utility.

5. A revision and further development of the basic course in social studies directed towards secur-

ing the teacher's proper orientation to the manifold problems of his social environment. This should culminate in a broad general survey of India and the world during the last fifty years.

6. A course of lessons and directed study in the mother tongue to introduce the teachers to some master-pieces of Indian art and literature, thus imparting a general cultural background.

7. Knowledge of Hindustani, and the capacity to read and write both the Hindi and Urdu scripts, in both Hindustani and non-Hindustani-speaking areas. (This is essential for teachers in *all* State schools and aided schools, if they are to further some of the basic cultural and civic objectives of this education).

8. Black-board writing and drawing

9. Physical culture, drill and deshi games.

10. Supervised practice teaching in attached demonstration schools.

We expect these teacher training schools to be residential institutions where the students and their teachers will be in close contact with one another. They should develop co-operatively a vigorous and many-sided social and cultural life in which the individual interests of the teachers in training will find adequate expression. We therefore invite the attention of the staff of these institutions to the desirability of encouraging the growth of many and varied

hobbies and social activities carried on by the teachers under training in their leisure time.

The real success of these institutions will be judged by the variety and spontaneity of the various hobbies and social activities, the enthusiasm and persistence with which they are carried out, and their reaction on the life of schools and the community.

The course as outlined above might possibly give the impression of being too heavy and ambitious, and therefore unlikely to be practicable. We are anxious to counteract that impression by pointing out that, if approached in the right spirit, it is possible to cover this ground with reasonable thoroughness. It has to be remembered, in the first place, that this is a continuous three year's course, and therefore it lends itself to a fuller planning than is the case at present. Secondly, we expect that after a few years' time when the scheme is well under way all the teachers recruited for training, having passed through our new schools will have covered a good deal of the ground in craft training and in other subjects such as social studies. Therefore, this course will not so much teach new subjects as carry further and give a professional orientation to subject matter already studied. Thirdly, we would again emphasise the fact that at this stage the object is not to make a thorough, systematic and scientific study of these various subjects, which would be an unduly ambitious undertaking, but to centre the teaching in actual concrete problems of civics, sanitation, hygiene, first aid, child behaviour and class room practice arising in the school or

in the environing community life. Of course, we hope that if professional pride has been quickened and intellectual interest has been generated, many of these teachers will continue their study privately and try to obtain a more thorough acquaintance with certain subjects. But so far as the training period of these teachers is concerned, our object is not to produce academically perfect scholars, but skilled, intelligent, educated craftsmen with the right mental orientation, who should be desirous of serving the community and anxious to help the coming generation to realise and understand the standard of values implict in this educational scheme.

Curriculum for a Short Course of Teachers' Training

To make a beginning with this scheme as soon as possible, we recommended that a short emergency course of one years' training be provided for teachers specially selected from existing schools, national institutions and ashrams. The teachers selected should possess some back-ground of successful teaching experience or craft work, and hold out promise of working the scheme in the right spirit with understanding and enthusiasm. The number of these teachers in any province may be determined by the number of schools which it is proposed to open at first.

The course of training for these teachers should include:

a. Training in carding and spinning with the takli. This will be compulsory, whatever may be the basic craft chosen.

b. Sufficient training in one of the above mentioned basic crafts to enable the teacher to teach the first three years' school course in that craft.

c. A short course in physiology, hygiene, sanitation and dietetics.

d. The basic idea of the craft school and its relation to community life.

e. Formulation and working of simple schemes of co-ordinated studies as a basis of co-ordinated teaching.

f. A short course of lessons on the history of the Indian national awakening and the trend of world movements during this century.

g. Teaching of at least twenty-five lessons in the practice school under proper supervision.

Section IV. Supervision and Examination.

A. Supervision.

An efficient and sympathetic supervisory staff is almost as important for the new schools as a well-trained teaching personnel. Supervision is a fairly specialised work and we would recommend that provision should be made for the training of supervisors to meet the ever-growing needs of an expanding school system. The minimum qualification for a supervisor should in our opinion be complete training as a basic school teacher, together with at least two years' experience of successful teaching and a year of special training in the work of supervision and administration. Supervision should not

be mere inspection, it should mean personal co-operation and help offered by one who knows more to a less experienced or less resourceful colleague. Supervisors should, indeed, be able to play the role of leaders and guides in the education experiment. In order that the more important obligations of helpful guidance and leadership may be properly fulfilled, it is necessary that the load of unavoidable administrative and routine work should be as light as possible. Therefore there should be an adequate number of supervisors, and the supervisory districts should not be unmanageably large. This will mean greater expense, but economy here will be bad economy.

B. Examinations.

The system of examinations prevailing in our country has proved a curse to education A bad system of education has, if possible, been made worse, by awarding to examinations a place out of all proportion to their utility. As a measure of the work of individual pupils or the schools, by a consensus of expert opinion examinations are neither valid nor complete. They are inadequate and unreliable, capricious and arbitrary We shall take care to guard the proposed system of general national education against their baneful influence.

The purpose of the examination can be served by an administrative check of the work of the schools in a prescribed area by a sample measurement of the attainment of selected groups of students conducted by the inspectors of the Education Board.

The tests so administered should be constructed in close consultation with the specialists responsible for curriculum revision. They should be long enough to cover the whole range of the curriculum and should be in a form which makes marking objective and independent of individual judgment.

The introduction of this check-up by sample testing will add greatly to the efficiency of the school system and will in fact lengthen the teaching term of the final class by at least six weeks, the time now usually wasted on memorising "notes" and "revisions" which precede the ordeal of examinations. This period may now be devoted to a test of the efficiency of individual pupils in the basic craft over a period of weeks, to be determined from case to case, and to comparatively more intensive work for the improvement of the village community which the school serves.

The promotion from grade to grade should be decided exclusively by the teaching faculty of the school on the basis of careful records of the pupils' work. To maintain the desired level of efficiency throughout the school system, the Board of Education should conduct an annual testing of typical sections from each grade of the schools of the various divisions. As far as possible, pupils should not be made to repeat the work of a grade or any considerable portion thereof. If a large number of children in a class "fails", the work of the teacher needs watching. If a school records many failures its administration must be looked into, and if the number of failures in the whole school system is large,

there is something wrong with the curriculum and the norms set for the several grades. This should be set right. There is hardly any justification for making pupils repeat the work of a grade.

The Board of Education should judge the efficiency of its schools by the sample achievement tests mentioned above, by the efficiency of the pupils in the basic handicraft, and by the specific contributions made by the teachers and pupils to the improvement of the general life of the community around. An annual district exhibition of the work of the schools will also go a long way towards keeping up to definite standard of achievement.

SECTION V. ADMINISTRATION.

1. The objectives of education which we have enunciated above (Sec. II) will require that the pupils remain at school for seven years. After careful consideration we have come to the conclusion that seven plus will be the proper age to enforce compulsion. Since we accept as a principle that the basic education should as far as possible be the same for all, we recommend that it should be free and compulsory for all girls and boys between the ages of seven and fourteen. As a concession, however, girls may be withdrawn after the completion of their twelfth year if the guardians so wish it.

2. We realise that by fixing seven plus as the age for the introduction of compulsory education, we have left out a very important period of the child's life to be shaped in the rather unfavourable sur-

roundings of poor village homes under the care of uneducated and indifferent parents mostly struggling against unbearable circumstances. We feel very strongly the necessity for some organisation of pre-school education, conducted or supported by the State, for children between the ages of three and seven. A painful consciousnes of the realities of the situation, chiefly financial, prevents us from making this recommendation We are anxious, however, that the State should not overlook its ultimate responsibility in the matter. We are confident that if the scheme of basic education suggested here, with its intimate relation to home life, is firmly established, it will go a long way towards helping the pre-school child to get a better home training than he now does. It will also help considerably in the great work of adult education which will have to be taken up in right earnest at no distant date.

3. We have tried to make an estimate of the time required to complete the different sections of the curriculum. We feel that the following distribution will be about right:

The basic craft	3 hours 20 minutes.
Music, drawing and arithmetic	40 minutes.
The mother tongue	40 minutes.
Social studies and general science	30 minutes.
Physical training	10 minutes.
Recess	10 minutes.
	5 hours and 30 minutes.

In making this estimate, we have kept spinning and weaving as the basic craft The distribution might vary from craft to craft, but in no case should the time allotted to the basic craft exceed the above estimate

The school is expected to work for 288 days in a year, average of 24 days in a month.

4. In view of the diversity of pupils' interests we recommend that as far as possible a variety of crafts should be provided for, at least during the last two years of the school course.

5. We are of opinion that every school should have attached to it a plot of land big enough for a school garden and a playground.

6 Research has established a very close relationship between malnutrition and backwardness at school Considering the almost universal undernourishment of the village children, we recommend that every effort should be made to remedy the defect by providing light nourishment to all children during school hours. We are confident that the State will be able to secure enough co-operation from the public to meet the expenses involved in the undertaking.

7. With regard to the teachers' salaries, we endorse Gandhiji's suggestion that "it should, if possible, be Rs. 25 and never less than Rs. 20." But we also contemplate that for teaching the higher classes of the school, it may be necessary to employ some teachers with higher academic qualifications,

and for them a somewhat higher pay may have to be provided.

8. We recommend that during the first two or three years of this experiment, specially qualified and competent teachers should be secured—even if their pay is somewhat higher—so that in selected schools they may work out the necessary details and technique of the syllabus and the new methods of teaching. When this pioneering stage has been successfully crossed, it will be possible for average teachers who have received training in our three year institutions to carry on the work fairly satisfactorily.

9. We are of opinion that the average number of students in any class should not exceed thirty. If the number is large, it will not be possible for the teacher to discharge his heavy and responsible duties efficiently.

10. In the selection of teachers, preference should be given to those who belong to the locality in which the school is situated.

11. In order to encourage women to take to this profession, special efforts should be made to provide facilities for training them as teachers.

12. The problem of selecting suitable candidates for training should be carefully and competently examined, and a reliable technique of selection evolved. We are convinced that unless this difficult problem is tackled, the scheme will have little chance of success. Teaching requires special social

and moral attitudes and qualities, and it is not right to assume that everyone who volunteers to enter the profession is suitable for it. We must, therefore, conduct our selection with great care and forethought and preferably take only those who belong to what the psychologists call "the social type".

13. We suggest that these training institutions should be residential institutions, open to all classes and creeds, and free from restrictions relating to untouchability and interdining.

14. In these institutions expert artisans or craftsmen may be employed to give craft training. Local artisans may also be utilised, if necessary, to help the teachers of basic schools in their craft teaching and in putting the finishing touches for marketing purposes to the material produced by the students.

15. Refresher courses on a large scale should be gradually organised at training colleges and schools, in order to maintain and improve the efficiency of teachers. Such courses should be of various types —cultural, professional and industrial.

16. Demonstration schools should be attached to every training institution and these should serve as laboratories where new methods of teaching are attempted and developed. These schools—staffed by specially qualified teachers—should serve as models for their locality, and teachers from other schools should be given an opportunity to see the working, teaching materials, and technique.

17. The introduction of a craft, the co-ordination and correlation of the content of the curriculum, the close relationship with life, the method of learning by doing, the individual initiative, and the sense of social responsibility, which are among the main features of the new scheme suggested here, cannot be realised without supplying to both the teachers and the pupils— but primarily to the teachers—such books and material as would help to achieve our aim. It is essential that the illustrative material, the books for the teachers, and the necessary programmes of correlated work should be prepared. Entirely new text-books, permeated with the new spirit, are also essential. The Board of Education in each province and the Central Institute of National Education, whose establishment is recommended below, will be able to render valuable help in this connection. The provinces which propose to establish the new type of schools must institute the requisite machinery for the preparation of these necessary books and materials at the earliest possible date.

18. In the section on examination we have referred to the systematic measurement of school achievements as an important function of the education authority in each province. We recommend that the Board of Education in each province should provide on its academic side for an efficient staff of educational experts. This staff should carry on scientific research to fit the school curriculum to the real life of the people, and to guide the teachers in the use of the new standards and norms of achieve-

ment. They should try progressive method of teaching, keep the teachers in touch with the results of successful experiments undertaken in this country and elsewhere, and also guide the training of teachers and supervisors.

19. Apart from the official boards, we would recommend the formation of an independent, non-official Central Institute of Indian Education, which should be free from administrative responsibility and consist of persons eminent in the field of education as well as in other spheres of cultural activity. The objects of this institute should be as follows:

1. To serve as an advisory body on matters of educational policy and practice.

2. To study and discuss the ideas and aims underlying educational efforts in India and outside, and to make the results of this study available to all who are interested.

3. To collect information about, and to keep in touch with, the educational work of the various Indian Provinces and States, as well as foreign countries.

4. To organise research on problems relating to education.

5. To issue monographs and a magazine for educational workers.

20. It is common knowledge that the different public utility services of the country which should be concerned with the welfare of its future citizens

are sadly un-co-ordinated. We recommend that the Department of Education should be placed in a position to secure the co-operation of the other State departments (*e. g.* Health, Agriculture, Public Works, Co-operation, Local Self-government) in building up a healthy, happy and efficient school community.

Mahatmaji,

In presenting the graded syllabus of Basic Education which you wanted us to prepare, we should like to clear up certain points which have caused, or may occasion, misunderstanding to those who have not clearly grasped the ideas and principles underlying this syllabus.

In the first place, it is necessary to appreciate the limitations under which we have worked. A syllabus of this kind, which aims at far-reaching reconstruction of educational practice, really requires a background of fairly extensive experimental work on the lines indicated in our Report, because it is only after such practical experience that all the possible correlations can be confidently worked out We have done the best we could in preparing this syllabus and have fully utilized our collective experience as teachers as well as the suggestions received from friends. But we must point out that this should be regarded as a tentative scheme drawn up to show that the principle of co-ordinated teaching which we have advocated in our Report can be worked out in practice and translated into the terms of the curriculum. As teachers in our training schools and colleges and in the new schools of basic education begin to work out the scheme scientifically and record their observations and experiences, it will be possible to improve the syllabus progressively. (Such an experimental attitude of mind on the part of the teachers is essential for the success and efficient working out of this educational scheme.)

We have given the detailed grade placements of the subjects for the seven classes of the basic school in order to show that, with spinning and weaving as the basic craft (selected for illustration), it is possible to include the essential subject-matter in language, mathematics, social studies, general science, and drawing, within the time available for the purpose, and to co-ordinate it with the craft work to a considerable extent. This will show that, on the one hand, the subject matter selected is not excessive (as some critics of the scheme have made out) and, on the other hand, no really significant units of a cultural curriculum have been omitted.

We have also given the detailed grade placements of two other basic crafts suggested in our Report—Agriculture and Woodwork. These syllabuses were prepared for us by experts outside our Committee, as none of us had the necessary knowledge and experience. Leaving aside the details of these syllabuses, we are confident that the contents of the general curriculum could also be correlated with or conveyed through either of these two basic crafts.

In order to work out an effective and natural co-ordination of the various subjects and to make the syllabus a means of adjusting the child intelligently and actively to his environment, we have chosen three centres, intrinsically inter-connected, as the foci for the curriculum, *i. e.*, the Physical Environment, the Social Environment, and Craft Work, which is their natural meeting point since it utilizes the resources of the former for the purposes

of the latter. With a view to demonstrate how the subject-matter selected is co-ordinated with these three centres we have also given, besides the grade placements, a separate indication of how the various items of the curriculum can be correlated with the basic craft of spinning and weaving. This will also, incidentally, answer the criticism that the scheme is not child-centred—a criticism which is based on ignorance of one of the most strongly stressed points in our Report. We have also given, as an Appendix, a chart prepared by one of our colleagues, showing graphically how the entire syllabus is definitely child-centred We fail to understand how this scheme, based on activity, and the study of the child's physical and social environment, can be less child-centric than the present education which is entirely book-centred!

It is essential for all teachers and educational workers to note that we have really attempted to draft an "activity curriculum", which implies that our schools must be places of work, experimentation and discovery, not of passive absorption of information imparted at second-hand. So far as the curriculum is concerned, we have stressed this principle by advocating that all teaching should be carried on through concrete life situations relating to craft or to social and physical environment so that whatever the child learns becomes assimilated into his growing activity.

It should be noted in this connection that in the preparation of this syllabus, we have attempted to organise the subject-matter into significant and

comprehensive units of experience which will, when mastered, enable the child to understand his environment better and to react to it more intelligently because they throw helpful light on the problems and conditions of life around him. We are conscious of the fact that there is much scope for improvement in the actual units selected, but we are confident that this is the right approach to the syllabus, rather than the current practice of making it a collection of unrelated and miscellaneous facts having no direct bearing on children's experiences or on social life. The syllabus in Social Studies and General Science will illustrate this principle When, for instance, work in Social Studies or General Science is related to Drawing, and the knowledge of History and Geography enriches the child's understanding and appreciation of his craft, when Gardening and Agriculture are an integral part of his education, the school should become an active centre of experience and of abundant life.

But the working of this curriculum is in itself a problem of great importance, and demands intelligent alertness and responsiveness on the part of the teachers, for even the best of curricula can be made mere dead letter, if the method of teaching and discipline adopted are not inspired by the spirit of activity. In order to indicate, therefore, how the full possibilities of this curriculum can be exploited, it seems necessary to point out by way of illustration, the method to be adopted in the approach to some of the subjects included in the curriculum. For if subjects such as Social Studies and General

Science are presented by the teachers as catalogues of facts to be passively accepted and learnt up by the children, the whole object of the syllabus will be defeated, and they will entirely fail to appreciate the real nature of the correlation amongst the various subjects. This can only be realised when they are acquired through real learning situations involving self-activity on the children's part.

In the syllabus of Mother Tongue, for example, we have attempted to stress both the creative and utilitarian values of language and literature. The teacher must organise his oral work as well as his reading material round the actual but growing life and interests of his children so that they may gradually.

a. develop a consciousness of the wonders of the life of nature around them,

b observe and describe the different process of the school crafts and the life of their home, village and school,

c write simple business and personal letters as a normal activity of social life,

d. keep a daily record of progress in the basic handicrafts,

e. help in the editing of a school magazine and the preparation of a daily news bulletin,

f. make a clear and connected speech of resonable duration on some topic of general interest,

g. appreciate beautiful literature.

This suggests not only a principle for the selection of topics in the literary readers, but also stresses

the close connection of the mother tongue with craft work, social studies and village life and activities. The method of teaching must, therefore, be such as will give the child a mastery of his mother tongue as a tool not only for learning but for use in actual life situations.

Similarly, the syllabus in Social Studies is an attempt to adjust the child to his social environment, both in space—which is the function of Geography—and in time—which is the function of History. Civics, which aims partly at the giving of intellectual understanding of the present day problems and partly at developing the right social and intellectual attitudes, has also been included as an integral part of this syllabus. It requires an intelligent study of the child's immediate environment and its salient features as well as the development in school of self-governing institutions and its organisation as a genuine co-operative community involving mutual obligations and distribution of duties and responsibilities.

The teaching of these subjects should not only be closely co-ordinated, but it should spring from actual social situations—the child's home, his village, its occupations and crafts—and then be extended and enriched by stories of primitive life and ancient civilizations, and by showing how different ways of life and work have developed under different social and geographical conditions. The teaching of geography and nature study in the lower classes should, for example, be gathered round the different seasons which provide a starting point for observing natural

phenomena, and the intelligent teacher will take care that the children make their early acquaintance with all these phenomena through active personal observations, excursions, gardening, tending of pets and survey of the locality. But it is necessary, throughout the course, to ensure that the child acquires his knowledge actively and utilizes it for the understanding and better control of his social environment. Hence the need for correlating the school with the activities of the environing community life which we have duly stressed in the Report

In order to make Mathematics real to the child we have indicated how its various processes can be correlated with the various craft processes and it is equally possible to work out their connection with facts learned in the Social Studies and General Science courses. If the children learn their four simple rules by actually working out the problems which arise in their craft work and gardening and by dealing with figures which will also throw light on the economic and social facts of their village or town or country, if there is practical measuring and field-work and calculations of expenditure and of rural indebtedness, the learning of mathematics not only becomes an active process, but also a means of interpreting and understanding the social environment.

As a further illustration of the principle of co-ordination, we should like to make a special mention of physical education. So far as the theoretical aspect of physical education is concerned, the child-

ren will gain the necessary knowledge of Physiology, Hygiene and Dietetics through their General Science courses. As for practical training, the entire work of the school, involving craft-practice, games, gardening and active methods of learning, has been envisaged as an aid to the development of the child's health and physical vigor.

We have not drafted a regular syllabus for Music because in this scheme of Basic Education it is not possible to give scientific training in music to all children. What we recommend, however, is that in all classes there should be a course of choral singing, set to standard tunes and time, with an elementary acquaintance with the principal Indian ragas and tals. This need not, however, be insisted upon in the case of all children—those who are not musically gifted or who have any objection to learning ragas and tals may be excused. The songs suitable for children between seven and fourteen should be carefully selected and should include national songs, folk songs, devotional songs, seasonal and festive songs The selection should also include a few songs in simple, quick rhythm suitable for group singing in connection with their craft-work and physical training. Such selections in various languages may be issued from time to time, out of which the teachers may make their choice.

It is possible to multiply such examples in connection with each aspect of the syllabus but it is not necessary to do so. These examples should suffice to show that there is an intrinsic unity of method

and curriculum which cannot be ignored, and that this syllabus will help in the training of intelligent, practical and co-operative citizens only if it is approached in the spirit indicated above.

We welcome the criticisms and objections which we have received or which have appeared in the press because they show that both teachers and the public have given thought to our scheme. But we feel that many of the objections raised are due to a misunderstanding of the basis of the scheme. We would, therefore, like, with your permission, to refer to the more important points raised.

1. Much criticism has been directed against the amount of time devoted to craft work, and it has been argued that academic work will be starved in consequence Without subscribing to the implied dualism between practical and academic work, we would point out that the time allotted to the basic craft is not meant to be spent only on the mechanical practice of the craft but oral work, drawing and expression work, naturally connected with it as well as instruction in the why and wherefore of the processes involved, *i. e.*, their scientific and intelligent understanding, which is an important educative aspect of craft work, will also be given during this time This is clearly implied in our scheme of three-centred co-ordination

Moreover, as pointed out in the Report, the object of the scheme is "not primarily to produce craftsmen able to practice their craft mechanically, but to exploit the resources implicit in craft work for edu-

cative purposes''—the adoption of the activity method should ensure the attainment of this objective.

2 Some people are alarmed because there is no reference in this scheme to secondary or higher education, forgetting that our terms of reference were confined to a seven years' scheme of basic education only, and they are apprehensive that we want to limit the facilities for higher education we have only to point out that this is a scheme of universal and compulsory basic education for all children, to be followed in due course by higher education for those who are qualified to receive it, and when that scheme is drawn up, it will have to be coordinated with the scheme of basic education so as to ensure continuity as well as proper intellectual equipment for those who are to proceed further with their education.

3. The scheme has also been criticised because it contemplates the child's education beginning at the age of seven, which is argued as being too late. In the Report, we have made it clear that we recognise the great importance of pre-school education and envisage the possibility of its introduction on a voluntary basis, with state help where possible. But in view of the present financial and other considerations, we have not felt justified in including it as a part of our compulsory scheme. Moreover, we have chosen the 7—14 age range because we consider it absolutely necessary to keep the child at school until he is fourteen, in order to ensure that (1) he will receive the essential modicum of social and civic

training which, for psychological reasons, is not possible earlier (2) he will become a better citizen, (3) his literary training will be thorough enough to make a lapse into illiteracy impossible, and (4) he will acquire sufficient skill in his basic craft to practice it successfully if he adopts it as his vocation. We are so strongly convinced of the educative importance of the years of adolescence that if we could extend the period of education, we should like to keep the students at school till the age of sixteen in order to ensure proper moral, social and civic training.

4. We have not given a separate and distinctive place to play in the scheme because it is essentially an extra-curricular activity; if it is made a compulsory part of the syllabus, it loses its spontaneity and ceases to be play in the psychological sense. But, in our syllabus, we have made provision for individual and group games and we contemplate that in all good schools various kinds of games will be encouraged. It should, however, be borne in mind, that in an activity school play is an integral part of its method and is not included as an escape from academic drudgery.

5. We should like to make it clear—if the Report has not already done so—that we do not contemplate any direct connection between the teachers' salary and the proceeds from the sale of the children's products. Teachers are to be paid directly from the State Treasury as at present and are not to be dependent on the somewhat fluctuating income received from the sale of school products, which

should be credited as income to the Treasury As the Wardha Conference had made it quite clear in its resolutions that the basic crafts practised in schools were expected in due course to cover only the remuneration of the teachers, it was hardly necessary for us to say that all other expenditure *e. g.*, on buildings, equipment, etc. must be met from other sources, public and private

6. We had not specifically mentioned, in our Report, the setting up of a sales organisation for the school products, because we were primarily concerned with the drafting of an educational scheme and not with its political and administrative implications. Moreover, you also had made it quite clear in your speech at the Conference that, in the last instance, the State will be responsible for their purchase at a fair price, and we had made a reference to your remark in the Report.

7. Considerable criticism has been voiced in certain quarters on the assumption that our scheme is opposed to all industrialisation and aims at harking back to a primitive state of society utterly incompatible with the forces and needs of modern times. Without entering into controversy about the respective merits of industrialisation and the rural economy, we want to point out that there is no necessary, logical connection between the scheme of basic education and either the industrial or the small-scale village economy. We have recommended the approach to education through crafts and productive work because that is a psychologically sound method

of education, but we fail to see why co-ordinated training in the use of the hand and the eye, training in practical skill and observation and manual work should be a worse preparation for later industrial training than the present education which is notoriously bookish and academic, and definitely prejudices our students against all kinds of practical and industrial work.

We are conscious of the large amount of administrative organisation which this scheme will involve and we realize that the Education Department in each province will have to think out the detailed ways and means by which the scheme is to be gradually put into operation. Without attempting to take over this great responsibility on ourselves, we should like to make a few suggestions, in this connection which we trust will be found useful in working out the detailed stages in which the scheme is to be introduced in India.

The first step, which should, in our opinion, be taken immediately, is to set up a number of training schools in selected rural areas—at least one or two schools in each linguistic province—where teachers may learn the technique of education through crafts and productive work and be trained to teach in the new basic schools. The number of teachers to be trained and basic schools to be opened in the selected area will be determined by the extent of that area. We suggest that a reasonably large area, *e. g.* a district, should be selected, for the purpose and the Education Department should undertake a survey

of its requirements—the number of existing schools to be transformed, the number of new schools to be opened and the number of teachers needed for them. Immediate steps should be taken to train this number both by utilizing the existing training schools and by opening new ones. We are of the opinion that this work of establishing basic schools for all the children in the selected area should be completed within five years Meanwhile, all the other training schools in the Province should be transformed into the new type of training schools, so that the work of establishing new basic schools as well as of transforming existing schools all over the Province may proceed as rapidly as trained teachers become available. It will be necessary during the first few years to have both kinds of training schools *i.e.*, one year and three year schools. The short course of one year's duration may be given to specially selected and, preferably, experienced teachers from existing schools so that they might start work a year later in the new schools. Simultaneously, however, the regular three years' courses should also be introduced and another group of teachers selected to undergo this training. The Department should arrange to send all the teachers in the existing schools who cannot attend the one year's course of training to specially organised refresher courses where they may understand the principles and methods of basic education. A scheme should be drawn up to ensure that all teachers in the service of the Department have attended such a course within the next five years.

It is essential that these training schools be located in rural areas so that teachers may work and acquire necessary experience under conditions in which they will have to carry on their teaching. If they are trained in an urban environment where they will be deprived of village contacts, they will not be able to develop the requisite attitudes and habits.

When the first batch of teachers has been trained, new basic schools should be started in a selected area where as far as possible all the schools should be of the new type contemplated. It does not seem desirable that schools of the present as well as the new type should co-exist in the same area. Naturally it will be easier and more useful to select for this purpose areas in which there are few schools at present and where, for that reason, the provision of educational facilities is more urgently required.

Secondly we suggest that every training school so started should have a demonstration school specially organised to impart basic education according to the syllabus and the technique outlined in our Report. This school, like the training school, should be staffed by specially competent teachers who possess the necessary intellectual and practical disposition to work the scheme sympathetically. It will serve as a model school for the locality to which other schools to be established later will look for inspiration and guidance.

Each province should, we suggest, undertake a survey of its educational requirements and plan out

a detailed programme of action. The survey should aim at finding out the number of children to be educated, the number of teachers and schools that will be eventually required for their education, the number of training schools that will have to be established, the rate at which trained teachers can become available year after year. On the administrative side, the survey should indicate the amount of money which will be required for recurring and non-recurring expenses and the machinery that will have to be put up for the sale of the school products These are practical and concrete problems that will have to be worked out—their magnitude is no excuse for fighting shy of them or looking upon them as impossible. We are fully alive to the financial implications of this great educational enterprise, but we think that it should be possible for provincial governments to put this scheme into full working order and introduce compulsory and free universal education in the whole country in about 20 to 25 years' time. What we suggest is the drawing up of a kind of 20 years' plan to provide basic education and to liquidate illiteracy. If this scheme is supplemented by some adequate system of adult education given through various voluntary agencies and also through the conscription of school and college students for the purpose, we have every hope that within that time India will have made rapid strides towards the goal of a 100 % literacy.

In working out the programme of national education, the Provincial Governments should utilize the services of the All India Education Board, the esta-

blishment of which we have recommended in our report The Board could, for example, help in the preparation of suitable educational literature for teachers as well as advise about the preparation of books for the new schools. It could also give advice on the educational problems which may be referred to it for opinion and generally act as a central bureau for educational information. The Provincial Governments should, in their turn, give all necessary help and facilities to the Board in the discharge of its important duties

There are also a number of other non-official organisations in the country, *e. g.*, national educational institutions, the All India Spinners' and Village Industries Associations which could help in the working out of the scheme in various ways. We expect that there will be close co-operation between these organisations and the Education Department. We also contemplate that as a result of the enthusiasm released by this scheme of national education, many voluntary organisations and workers will be forthcoming to start training centres and basic schools. The Provincial Governments should encourage such private enterprises in education and help them with expert advice and funds.

We desire to express our thanks to all those friends who have helped us in our work by sending their suggestions and criticism and by drafting syllabuses in various subjects, which we have utilized in preparing our syllabus of basic education. We were happy to find, from some of the institu-

tions and individuals that sent us their suggestions, that there were schools in India which had been working already almost on the lines contemplated in the Wardha scheme.

We should like to make special mention and express our grateful thanks to the following, whose syllabuses in the various subjects were particularly helpful.

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We submit this syllabus to you in the hope that it will meet with your approval and that it may form an adequate foundation for basic education suited to the genius of the Indian nation and the needs of the country.

Respectfully,

Sd|- ZAKIR HUSAIN (*Chairman*)
K. G. SAIYIDAIN
KAKA KALELKAR
KISHORLAL MASHRUWALA
J. C. KUMARAPPA
SHRIKRISHNADAS JAJU
VINOBA BHAVE
ASHA DEVI
ARYANAYAKAM (*Convener*).

DETAILED SYLLABUS

Basic Craft Agriculture.

The syllabus has two distinct parts. The first relates to the period beginning from Grade I to Grade V, when agriculture will not be taken up as a basic craft. During this period the aim will be to provide a suitable course to interest and instruct the pupils in the fundamental principles of soil management and plant growth. It will form part of the syllabus in General Science. The pupils will be working on a small plot of about an acre, and will grow vegetables and other garden crops.

The second relates to the period of Grades VI & VII, when the pupils may take agriculture as the basic craft. The practical and theoretical courses for each year are so correlated that while practising the first the second could very easily be explained to and assimilated by the pupils.

GRADE I.

N. B.—Pupils in this class will be seven years old. Garden work only will be done on a small portion of the demonstration plot. They will use small khurpies and watering cans. The first half year will be spent entirely in observation. Practical work as suggested below would begin in the next half-year. The theoretical portion should be dealt with in an interesting manner. Only broad facts should be given—details are to be developed later.

Practical.

1. Sowing of seeds in the nursery.
2. Watering the nursery.
3. Care of seedlings and plants (garden).
 - (*a*) Watering.
 - (*b*) Weeding.
 - (*c*) Mulching.
 - (*d*) Picking insects.
 - (*e*) Manuring the nursery and small garden plants with fertilizers.
4. Collection of seeds of flower plants and vegetables in the garden.
5. Animal husbandry.
 Feeding domestic birds and animals. Taking care of the young of pets.

Theoretical.

1. Recognition of a plant and its different parts. Roots, stems, leaves, flowers and fruit.
2. How a plant develops from the seed. Seed, root, stem, leaves, flowers and fruit.
3. What the plant needs for its growth. Soil, water, food, light and air.
4. Uses of birds and animals.

N. B.—In addition to the above, the pupils will be taken round the fields in the village for observational purposes.

GRADE II.

Practical.

1. Sowing of seeds.
2. Preparation of small seed beds in boxes.
3. Preparing areas to take seedlings—garden beds of small sizes.
 (*a*) Digging.
 (*b*) Manuring.
 (*c*) Khurpi work.
4. Transplanting of vegetable and flower seedlings:
 (*a*) Spacing.
 (*b*) Handling.
 (*c*) Planting.
 (*d*) Watering.
 (*e*) Protection.
5. Mulching and weeding with khurpies.
6. Manuring:—
 (*a*) Top-dressing.
 (*b*) Mixing.
7. Picking insects and spraying the diseased parts of plants.
8. Propagation other than by means of seed.
 Use of cuttings—how performed—results to be noted later.
9. Animal husbandry.
 Keeping pets and observing their habits.

10. Art and craft.

Preparing designs in the garden based on certain geometrical figures. Preparation of bouquets and garlands. Making hanging pots for flower plants and creepers from bamboo chips.

Theoretical.

1. How the site for a nursery should be selected and a nursery made.
2. Kind of soil and manure required.
3. Recognition of good and bad seed
4. Effect of the quality of seed on germination.
5. Functions of different parts of the plant:—

 (*a*) Root.—fixation in the soil—absorption of food.

 (*b*) Stem. Absorption—carrying the food and sustaining the upper growth.

N. B.—Red ink experiment may be performed in the class room to show how the absorbed material rises through the channel.

6. Time of planting—late in the afternoon. Watering—early in the morning and late in the afternoon.
7. Collection of seed. Where and how to collect.

N. B.—The pupils will be taken round the farm when important operations are in progress, for purposes of observation.

GRADE III.

Practical.

N. B.—In this class, all the operations in the flower and vegetable garden will be done by the pupils. They will be able to handle and work with small sized spades, forks, kudalies and other hand tools.

1. All operations done in the two previous classes to be repeated.
2. Potting the plants.
3. Preparation of leaf mould and compost for pots.
4. Propagation of plants by layering. Results to be noted later.
5. Rearing of caterpillars to see the four stages.
6. Mulching of flower and vegetable beds during breaks.
7. The use of manured and unmanured pots to observe the difference in the growth of plants.
8. Animal husbandry. Tending the animals.

Theoretical.

1. Study of germinated seeds:—

 (*a*) Embryo.
 (*b*) Cotyledons.

 Embryo grows into plumule and radical.

 Contents of cotyledons. Growth of plumule upwards, and of radical downwards. Fate of cotyledons as a plant grows.

2. Study of roots:—
 (*a*) Tap root.
 (*b*) Fibrous root.

3. Study of stem, division into bark and wood, nodes, internodes, buds, branches and leaves. Difference between a root and a stem.

4. Life history of a butterfly and grass-hopper.

5. Crop pests.
 Stem and shoot borer. Control measures.

6. Pot filling:—
 (*a*) Material required for filling the pots.
 (*b*) Qualities of a good leaf mould and the proportion in compost.

7. Necessity of manures and their functions. The use of artificial manures.

8. Disposal of night soil. Its value as manure.

9. Knowledge of the different dairy products.

GRADE IV.

Practical.

1. Growing of rainy season vegetables in the garden plots.
 Cucurbits, beans, brinjals, etc., (according to locality).

2. Preparation of land in the garden for transplanting the seedlings.

3. Manuring the land.

4. Laying out the land for irrigation and irrigating the crops after transplanting and thereafter.
5. Top-dressing of vegetable crops with different fertilisers. Ammonium sulphate, nicifos and nitrate of soda.
6. Percolation and capillary experiments with and without mixture of manure, lime and sand.
7. Study of different ploughs.
 (*a*) Wooden.
 (*b*) Iron ploughs—monsoon, J. A. T., Kokan and Ridging. Their functions by observation while they are being worked in the fields.
8. Visits to the neighbouring hills where possible to demonstrate the formation of the soil.
9. Poultry farming.
 Feeding, cleaning the sheds and the runs; collecting eggs; hatching; care of chickens.

Theoretical.

1. Recognition of field crops. Division into two main groups according to the time of sowing. Rabi and Kharif.
2. Study of soil.
 (*a*) Formation of soil. Agencies which bring about the weathering and tearing of rocks.
 (*i*) Air. (*ii*) Water. (*iii*) Heat.
3. Recognition of soils of the locality.

4. Their classification in to sandy, loamy and clay.

5. Recognition by:—

 (*a*) Feel, granulation, colour, weight.
 (*b*) Mechanical analysis of each.
 (*c*) Physical characters of each.
 (*d*) Correlation between texture and structure of a soil. Presence of air and its effect on absorption, percolation and capillary rise.
 (*e*) To deduce from above the suitability of soils for kharif, rabi and garden crops.

6. Forms of soil moisture.

7. The control of soil moisture.

8. Necessity of manures and their functions. When, how, and in what quantities artificial manures should be applied

GRADE V.

Practical.

1. Weeds and weeding.

2. Wooden and iron ploughs. Their functions by observation during their use in the field.

3. Bakharing or harrowing.

 Difference between ploughing and bakharing to be observed.

4. Cultivation of vegetables. In addition to rainy season vegetables, cold weather vegetables, such as cauliflower, lettuce, cabbage, knolhol,

french beans, tomatoes and peas will also be grown on the plot.

5. Study of roots of cotton, jowar, tur and gram.

6. Planting of the pieces of the roots of radish and carrot, and of the stems of potatoes, arun, and ginger for the recognition of roots and stem.

7. Pupils to collect many kinds of leaves and to divide them first according to veins and later on into simple and compound leaves.

8. Pupils to observe and to note the time of opening of flowers in their garden.

9. Compost making from weeds and other vegetable matter collected in the garden.

10. Field experiments to be carried out in special small plots, set aside in the garden for observation purposes to note the effects of manuring, weeding and mulching.
 (*a*) Manured *versus* unmanured plots with the same crop and uniform treatment in other respects.
 (*b*) Weeded *versus* unweeded plot.
 (*c*) Crop weeded and hoed *versus* weeded only.

Theoretical.

1. Kinds of weeds.
2. Necessity of weeding. When and how to weed,
3 Effect of cultivation on weeds.
 (*a*) Deep for perennials

(*b*) Shallow for annuals.

4. Utility of mulching during the after-rains. The effect on
 (*a*) Absorption and retention of soil moisture for rabi crops.
 (*b*) Weeds.

5. Country and iron ploughs to be compared. Difference in—
 (*a*) Make.
 (*b*) Work.
 (*c*) Advantages of monsoon plough over the country plough.

6. Kind of work a bakhar does. The difference between the working of a plough and a bakhar. Effect of bakharing rabi land during breaks in rains.

7. Formation of roots and their division into two root systems. Tap and fibrous.

8. Modification of the roots and terms.

9. Observation of roots such as the radish, sweet potato and carrot, and stems such as potato, arun, ginger, and their distinguishing characters.

10. Adventitious roots such as on banyan tree, jowar, wheat and creepers.

11. Study of flowers, as regards the arrangement of parts, colour, smell and the time of opening.

12. Method of preparing manures. Cow-dung manure and urine earth.

N. B.—Pupils will be required to work in the fields, and carry out all operations in growing crops.

Practical.

1. Yoking bullocks to bakhar and ploughs, and straight driving.
2. Growing of suitable crops of the tract. Cultivation in detail from preparation of the land to threshing and cleaning of grain of some of the locally grown rabi and kharif crops.
3. Working of all necessary implements used in raising field and garden crops. Hoes, seed-drills, ridging-ploughs and cultivators.
4. Cultivation of garden crops—chillies, sugar-cane, potato, arun, ginger, turmeric, peas etc.
5. Storing of cow-dung in pits and conservation of urine by urine earth system.
6. Growing sann hemp for green manuring.
7. Manuring the fields with cow-dung and urine earth.
8. Green manuring with sann hemp for garden crops and rice if locally grown.
9. Use of liquid manures.
10. Rotation practiced on the farm to be demonstrated.
11. Collection of flowers and their classification according to parts.

Observation of which insects visit the flower and what they do there.

12. Horticulture.

Propagation of plants:—

(*a*) Gauvas by "Ghootee".
(*b*) Oranges and roses by "budding".
(*c*) Mangoes by "enarching" and "grafting."

13. Planting of propagated plants:—

(*a*) Lay out; (*b*) digging of pits; (*c*) filling and manuring of pits; (*d*) planting of plants; (*e*) spacing of plants according to size; (*f*) Irrigation; (*g*) Pruning of fruit trees and shrubs.

14. Field experiments to be carried out in special small plots set aside in the garden, and observations noted down in each case.

(*a*) Rotational.

(*i*) Same crop to be grown continuously in the same plot.

(*ii*) Same crop to be grown in rotation with suitable crop.

(*b*) Cultivated and bakhared *versus* cultivated and trampled plots in black soil. Observation to be made during rains. To explain absorption and importance of frequent stirring during rains and conservation of moisture at the end of the season for rabi crops.

(*c*) Growth of plants to be observed in surface and subsoils, plants to be grown in pots filled with both soils.

Theoretical.

1. Storing of seed.

2. Test of good seeds:—
 (*a*) Gravitation.
 (*b*) Germination percentage.

3. Preparation of seed-bed according to the size of the seed.
 (*a*) Fine for fine seeds.
 (*b*) Coarse for big seeds.

4. Methods of irrigation.
 (*a*) Preparing beds; (*b*) flood; (*c*) principles to be kept in mind according to the texture and situation of the soil.

5. Soils.
 Comparison of surface and sub-soil.
 (*a*) Depth at which separation occurs.
 (*b*) Feel, granulation and colour.
 (*c*) Stickiness and wetness.
 (*d*) Amount of organic matter present.
 (*e*) Difference in the fertility of the surface and sub-soil.
 (*f*) Care to be taken while ploughing not to bring the sub-soil to the surface.

6. Necessity of ploughing.

(*a*) Destruction of weeds and insects.

(*b*) Clearing the fields.

(*c*) Turning the soil.

(*d*) Formation of plant food.

(*e*) Retentive capacity of cultivated and uncultivated land.

(*f*) Effect on Rabi crops.

(*g*) Necessity of moonsoon ploughing and constant bakharing during breaks in the rains.

7 Study of farm crops.

(*a*) Recognition of crops grown in the locality, attention to be drawn to:—

(*i*) Time and method of sowing.

(*ii*) Seed rate per acre.

(*iii*) Distance between the rows

(*iv*) Various operations performed during its growth How and why?

(*v*) Harvesting time.

(*vi*) Outturn per acre.

8. Ploughs and bakhar to be studied.

(*a*) Their various parts and the work done by each.

(*b*) Camparison of working of a bakhar and disc harrow.

(*c*) When the disc harrow is used:—to crush the clods and prepare tilth to simplify the working of a bakhar in weedy land.

9 Study of other harrows:—their work and purpose.

10. General principles to be given in the class-room regarding the ways, methods, and time of plant-propagation, oranges, mangoes and guavas

11. Cultivation of fruit trees to be taken in details.

(*a*) Oranges (*b*) Lemons (*c*) Guavas. (*d*) Other fruit trees.

12. Rotation of crops.

(*a*) Its necessity. (*b*) Purpose. (c) Effect on fertility. (*d*) How to arrange it.

13. Detailed study of sugar-cane crop.

14. Manures in details with classifications:—

(*a*) Plant is built up of gaseous matter and ashes. Where does each come from?

(*b*) The main ingredients of a manure:—nitrogen, potash, and phosphorous.

(*c*) Effect of each on the plant growth.

(*d*) Bulky and concentrated manures.

(*e*) What crops can be used for green manuring. Time for green manuring

15. Other methods of preserving the fertility of soil:—Rotation, judicious cultivation.

16. Detailed study of field and garden crops continued.

17. Plans and estimates for the construction of simple sheds and stables with practical training wherever possible.

18. Practice in the elements of smithy and carpentry necessary for mending agricultural implements.

GRADE VII.

Practical.

1. Threshing, winnowing and cleaning of crops raised after harvesting them. Fitting of a winnowing machine to clean different crops.

2. (*a*) The pupils to study the pests on the crops they have grown.
(*b*) Preparation of insecticides and spraying.

3. Study of flowers, continued.

4. Raising of crops to be continued—field, garden and fruit.

5. Preparation of gud.

6. Experiments to be performed to show that plants give out oxygen in assimilation.

7. Dismantling and re-fitting of sugar-cane crushing mill.

8. Turnwrest and Sabul ploughing. Dismantling and re-fitting the above two ploughs.

9. Animal husbandry.
Care of animals:—Better housing, cleanliness, proper feeding, when at light or hard work.

10. Dairying.
Milking and preparing products from milk.
How to judge good milkers.
Chief points to be remembered and demonstrated.

11. Cattle diseases.
(*a*) Treatment of ordinary cases such as wounds, inflammations, skin diseases, etc.
(*b*) Contagious diseases.
Observations of such animals and their treatment.

12. If possible, the pupils may run a co-operative shop in the school,

13. Farm accounts.
The boys to keep complete account of the school farm, to work out profit and loss per crop as well as for the whole farm on prescribed registers.

14. Field experiments to be carried out in special small-sized plots set aside in the garden and observations noted down in each case periodically, and conclusions drawn at the end of the trial.
(*a*) Thick planting versus proper planting.
(*b*) Crop grown in plot exposed to sunlight versus crop shaded from sunlight.

(*c*) Observation of plant growth and water holding capacity in sandy soil versus sandy soil manured with humus, heavy soil versus heavy soil manured with humus.

(*d*) Observation of effect of exposure to weather of soil cultivated when wet or dry.

Theoretical.

1. (*a*) Seed drills.
 (*b*) Threshing machine Olpad.
 (*c*) Winnower

2. *Pests*:—
 (*a*) What are pests?
 (*b*) Natural and artificial means of checking them.
 (*c*) Harmful and beneficial insects.

3. *Flowers and fruits*:—
 (*a*) Flowers studied in detail with reference to male and female elements.
 (*b*) Pollination as a means of fertilisation and the agencies of pollination.
 (*c*) Division of fruit into dehiscent, indehiscent, dry and pulpy
 (*d*) Means of seed dispersal.

4. Exhalation of oxygen from the leaves.
 (*a*) Nutrition.
 (*b*) Green colour and the effect of sunlight.

Transpiration—Means of decreasing and increasing transpiration.

5. Implements.
 (*a*) Sugar-cane crushing mill.
 (*b*) Fodder cutter.
 Cost, out-turn and working expenses of each.

6. Special method of eradicating.
 (*a*) "Kans".—bunding the fields, uprooting in rains by deep ploughing followed by constant bakharing during breaks in rains and after.
 (*b*) "Nagarmotha":—by growing sann crop in the field
 (*c*) "Dub" —by deep ploughing in hot weather and constant bakharing during breaks in rains and after.

7. Effect of deep and shallow ploughing on perennial weeds and insects. Deep and shallow ploughing according to the soil and season. When and with what purposes the spring and spike tooth harrows are used

8. Cattle breeding.
 Principles of breeding and rearing of cattle. Selections of good bull, suitable cows; cross and in-breeding and proper selections.

9. Cattle diseases
 (*a*) To distinguish a sick animal from a healthy one.

(*b*) Segregation of sick animals.

(*c*) Care of sick animals. Housing and feeding. General precautions to be taken to protect one's herd from contagious diseases.

10. Detailed study of field and garden crops continued.

11. Co-operation.

(*a*) Instruction in principles of co-operation in a village.

(*b*) Its advantages.

12. Farm account.

(*a*) Stock book.

(*b*) Classified contingent register.

(*c*) Cash book.

(*d*) Diary.

(*e*) Muster-roll, weekly and monthly.

(*f*) Ledger.

13 *Preparation of final yearly accounts and how to work out profit and loss.*

N. B.—Revision of the portions taught in the previous classes in soils, cultivation, manures, crops, etc. The pupils would continue to work in the field throughout the year in crops grown by them.

Cropping to suit cotton tract with lift irrigation facilities.

(Substitution of other staple crops to suit local conditions not likely to affect the revenue).

1.	Acreage	20 acres
2.	Cropping:—	
	Sugar-cane	2 „
	Fruit	4 „
	Garden Crops	6 „
	Cotton, juar, groundnut	8 „
	Total	20 „

		Rs.
3.	Total receipts	1,910
4.	Total recurring expenditure including depreciation	910
5.	Net profit	1,000
6.	Requirement of non-recurring nature	6,000
7.	Requirement of recurring nature for the first year	900
8.	Total amount required to start	6,900

No further amount will be required to keep the plot running from year to year unless there is a crop failure due to unforeseen circumstances.

Where irrigation is available from a canal, the non-recurring expenditure can be reduced by Rs. 1,450. Saving in labour is expected to meet irrigation charges. In C. P., these are Rs. 15 for cane and Rs. 10 for garden crops.

PROPOSED CROPPING PROGRAMME TO SUIT COTTON TRACT WITH LIFT IRRIGATION FACILITIES.

Details of expenditure.

Crop	Area	Labour	Other Charges	Land Revenue.	Total Expenditure.	Average Outturn per acre	Total Receipts Expected	Net Profit.
Cane	2.00	164	130	6	300	200	400	100
Fruits	4.00	210	190	12	412	150	600	188
Garden Crops	6.00	210	250	18	478	125	750	272
Cotton, juar, groundnut in equal areas	8.00	52\|6\|8	45\|9\|4	22	120	20	160	40
Total	20 00	636\|6\|8	615\|9\|4	58	1310		1910	600
Deduct saving due to boys' labour		400			400			400
	20.00	236\|6\|8	615\|9\|4	58	910		1910	1000

If land revenue is not charged, it will go to make up a sinking fund to meet any unforseen contingencies. Fruit area may take some years to bear but during this period, other garden crops can be grown in between the plants and income maintained.

List of Requirements of a non-recurring nature for the plot.

S. No.	No. required	Name of articles	Cost Rs.
1.	20	Acres of land	2,000
2.		Good well with enough supply of water for 2 Rahats	750
3.		Fencing	500
4.	2	Rahats	700
5.	3	Pairs of Bullocks	350
6.	1	Turnwrest plough	35
7.	2	Jat ploughs	24
8.	2	Bakhars	10
9.	1	Planet Junior Hoe	40
10.	4	Ordinary Hoes	10
11.	1	Ridging plough	45
12.	1	Planker	5
13.	2	Country ploughs	4
14.	1	Argara	4
15.	1	Nari	3
16.	3	Yokes	4
17.	4	Shivlas	2
18.	2	Carts	80
19.	4	Chains	8
20.		Ropes etc.	10
21	1	Hut for bullocks with room for implements and cattle	300
22.	1	Sprayer	50
23	12	Phawaras	12

S. No.	No. required	Name of articles	Cost Rs.
24	6	Pickaxes	9
25.	12	Sickles	6
26.	12	Picks	6
27.	12	Khurpas	6
28	12	Weeding Forks	18
29.	2	Balances with weights	10
30.	1	Kodo measure	4
31.	1	Augur	2
32.	1	Basula	2
33	1	Bindhna	1
34	1	Axe	1
35.	2	Crow-bars	5
36	6	Digging forks	30
37.	2	Secateurs	10
38.	6	Budding knives	18
39.	6	Pruning knives	12
40.	6	Ghamelas	6
41.	1	Winnower	160
42.	1	Cane crushing mill	150
43.	1	Pan	30
44	1	Olpad Thresher (where wheat will be grown)	45
45	2	Cows	80
46.		Feed of bullocks and cost of plants etc. for the first year	300
47		Miscellaneous	50
		Grand Total	Rs. 5,910

The total investment of non-recurring nature required works out at Rs. 5,910 or in round figures Rs. 6,000. The land value has been calculated at Rs. 100 per acre. It is possible to get land cheaper in nearer towns.

An additional provision of Rs. 900 to meet recurring expenditure for a year would be enough to get the plot into running order.

A SEVEN YEARS' COURSE OF SPINNING AND WEAVING AS THE BASIC CRAFT.

1. The course has been divided into two parts:
 (*a*) A course of spinning,
 (*b*) A course of weaving.

2. The first five years of the course should be devoted to spinning, and the last two years to weaving with an elementary knowledge of carpentry and black-smithy correlated to the craft.

3. Each year has been divided into two terms as this will be a better record of the child's progress.

4. The processes of ginning and cleaning cotton should be introduced into schools only to serve as practice lessons. All the cotton used in the schools should be cotton ginned on the handginning charkha, except the quantity of cotton necessary for the practice work in the above two processes. For this purpose it will be necessary to have clean cotton picked from the fields, *i. e.*, cotton free from leaves and insects.

5. Senior students should prepare slivers for the juniors who cannot card for themselves.

6 It should be a matter of special attention on the part of the teacher that there should be no wastage of yarn (from breaking, etc) from the very earliest stage in the processes of spinning, whether on the takli or on the charkha. 10% wastage is, however, usually allowed (including 5% in carding), prices of yarn being calculated so as to cover this. In any case, therefore, our wastage must not exceed this limit

7. When the count of the yarn produced is 8 to 12 or less, the cotton used should not be of a lower quality than *rozium*. When the yarn produced is of 13 counts or upwards, only cotton of a longer fibre such as Veram, Surati, Cambodia, Jayvant or Punjab-American should be used.

8. The time given to correlated craft training should be three hours and twenty minutes per day, and the total number of working days in the year, 288 (on the basis of 24 per month).

9. The speed which is expected at the end of the half-yearly term, and which will be used as a test, is applicable only for the specified time of the test. The daily speed given represents the average daily speed for 3 hours 20 minutes' work.

10. 25% deduction has been made from the total estimated output for absences due to illness and other causes.

GRADE I: FIRST TERM

SPINNING

1. The following processes should be taught during this term:—

a. Cleaning cotton.
b. Preparing slivers from carded cotton
c. Piecing.
d. Spinning on the takli with the right hand;
With the fingers;
On the leg above the knee;
On the leg below the knee.
e. Spinning on the takli with the left hand, but the twist to be as the right hand twist.
The three methods as above.
f. Winding yarn on to the winder.

2 Spinning on the takli should be taught alternately with right and left hands.

3. The speed at the end of six months, including winding, should be 1½ lattis (hanks of 160 rounds) of 10 counts yarn in three hours.

4. The average daily speed for the six months should be ¾ latti of 10 counts yarn in three hours—*i. e.* the total production of 144 days will be 27 goondis (hanks of 640 rounds), weighing one seer 6 chataks. Wages at the rate of -|12|- per seer, excluding carding, will be Re. 1|-|6.

GRADE I: SECOND TERM

1. In this term carding should be taught.

2. At the end of six months the speed of carding (including the making of slivers) should reach 2½ tolas an hour.

3. At the end of six months the speed of spinning on the takli, including winding, should be 2 lattis of 10 counts yarn in three hours.

4. The average speed of spinning on the takli for this term, including carding, should be 1¼ lattis of 10 counts yarn in three hours. The total production will be 45 goondis weighing 2¼ seers. Wages @ Rs. 1-6-0 per seer (including carding) will be Rs. 2-8-6.

PROBLEMS CONNECTED WITH THE MECHANICS OF SPINNING ON THE TAKLI.

1. If a greater amount of yarn is wound on to the takli, why is the rate of revolution of the takli reduced?

2. If the yarn is loosely wound on to the takli, why does the rate of revolution of the takli decrease?

3. Why do we apply ash while spinning in order to increase the rate of revolution of the takli?

GRADE II: FIRST TERM

Spinning

1. Ginning should be taught in this term.

2. At first, ginning should be taught with a wooden plank and a steel rod. When the speed has reached 1 chatak in ½ hour the village hand-gin should be introduced.

3. The speed of ginning at the end of 6 months should reach 20 tolas of cotton in ½ hour.

4. The speed of carding (including the preparation of slivers) at the end of the term should reach 3 tolas per hour.

5. The speed of spinning on the takli (including winding) at the end of the term should reach 2¼ lattis of 10 counts yarn in 3 hours.

6. The daily average rate of spinning on the takli (including carding) for the term, should reach 1¾ lattis of 12 counts yarn in three hours. The total production will be 63 goondis weighing 2 seers 10 chataks. Wages @ Rs. 1-6 per seer (including carding) will be Rs. 3-9-9. Adding -|4|- for ginning, the total wages will be Rs. 3-13-9.

GRADE II: SECOND TERM

1. In this term, students should be taught spinning on the Yeravda Charkha, with double-grooved spindle-holders (Modies).

2. Spinning on this charkha should be taught with the right and left hands alternately.

3. The speed of carding (including the making of slivers) at the end of the term, should reach 3½ tolas per hour.

4. The speed of spinning on the takli (including winding), at the end of the term, should reach 2¼ lattis of 12 counts yarn in three hours.

5. The speed of spinning on the charkha (including winding) at the end of this term, should reach 3¾ lattis of 16 counts yarn in three hours.

6. During this term the processes of calculating the count of the yarn produced should be taught. The child should be able to do the work both practically and with the correlated theoretical knowledge.

7. The daily average speed of spinning (including carding), for the term, on the charkha should be 2½ lattis of 14 counts yarn in three hours. The total production will be 90 goondis weighing 3 seers 3½ chataks. At the rate of Rs. 1-10 per seer (including carding) the wages will be Rs. 5-3-6. Adding -|4|- for ginning, the total income becomes Rs. 5-7-6.

PROBLEMS CONNECTED WITH THE MECHANICS OF SPINNING ON THE CHARKHA.

1. The advantages and disadvantages of keeping the spindle of the charkha parallel to the ground or at an angle.
2. What should be done in order that the pulley may revolve exactly in the middle of the modie?
3. Which parts of the charkha should be oiled?
4. Why should the charkha be oiled?

5. Why does the charkha move more smoothly after oiling?

Here the principle of friction should be explained to the children. Also, they should notice the effect of oiling the hinges of a door, a swing, and the pulley for drawing water from a well.

GRADE III · FIRST TERM

Spinning

1. In this term the students should be taught to recognise the different types of cotton. They should also learn to estimate the length of fibre and to understand the count of yarn which can be produced from each different type of cotton.

2. At the end of the term, the rate of carding (including the preparation of slivers) should reach 4 tolas an hour.

3. At the end of the term, the speed of spinning on the takli (including winding) should reach 2½ lattis of 12 counts yarn in three hours.

4. At the end of this term, the speed of spinning on the charkha (including winding) should reach 3¾ lattis of 20 counts yarn in three hours.

5. The daily average speed of spinning (including carding) of the term will be 2½ lattis of 20 counts yarn in three hours. The total production will be 90 goondis weighing 2¼ seers. Wages at the rate of Rs 2-4-0 per seer (including carding) will be Rs. 5-1-0

GRADE III: SECOND TERM

1. At the end of the term the speed of spinning on the takli (including winding) should reach 2¾ lattis of 12 counts yarn in three hours.

2. At the end of the term the speed of spinning on the charkha (including winding) should reach 4½ lattis of 20 counts yarn in three hours.

3. The daily average speed of spinning for the term (including carding) will be 3¼ lattis of 20 counts yarn in 3 hours. The total production will be 117 goondis weighing 2 seers 14½ chataks. Wages @ Rs. 2|4|- per seer (including carding) will be Rs. 6-8-9.

PROBLEMS CONNECTED WITH THE MECHANICS OF SPINNING AND CARDING.

1. What is the advantage of the moving modia?
2. What is the reason of slippage? And how should it be prevented?
3. What is the effect on carding of a tightly or loosely strung gut on the carding bow?
4. What are the uses of the springs in the Yeravda charkha?

GRADE IV: FIRST TERM

Spinning

1. During this term the students should be taught the following subjects with the correlated theoretical knowledge:—

a. How to find the strength and evenness of the yarn;

b. How to calculate the resultant speed by the formula S|C where S is speed and C is count.

2. In this term the students should learn to repair the hand-gin and the carding bow.

3. At the end of six months the speed of spinning on the charkha (including winding) should reach 4½ lattis of 24 counts yarn in three hours.

4. The daily average speed of spinning (including carding) for this term should reach 3½ lattis of 24 counts yarn in three hours. The total production will be 126 goondis weighing 2 seers 10 chataks. Wages @ Rs 2|14|- per seer (including carding) will be Rs. 7-8-9.

GRADE IV: SECOND TERM

1. In this term the students should be taught the following subjects:—

a. A knowledge of the different parts of the Yeravda Charkha and how to repair it.

b. The preparation of bamboo taklis.

2. At the end of the term, the speed of spinning on the takli (including winding) should reach 3 lattis of 14 counts yarn in three hours.

3. At the end of the term, the speed of spinning on the charkha (including winding) should reach 5 lattis of 28 counts yarn in three hours.

4. The daily average speed of spinning (including carding) for the term should be 3½ lattis of 28 counts yarn in 3 hours. The total production will be 126 goondis weighing 2¼ seers. Wages @ Rs 3|10|- per seer will be Rs. 8-2-6.

PROBLEMS CONNECTED WITH THE MECHANICS OF SPINNING.

1. The speed of spinning is increased by a pulley of a smaller diameter. But why is it more difficult to wind the yarn?
2. What should be the distance between the centres of the two wheels of the Yeravda Charkha?
3. Why is the actual number of revolutions less than the calculated number of revolutions? (slippage).

GRADE V: FIRST TERM

Spinning

1. In this term the students should be taught the Andhra method of ginning and carding and spinning yarn to 40 counts; but the spinning should continue to be on the Yeravda Charkha.

2. At the end of the term the speed of spinning (including winding) should reach 2 lattis of 40 counts yarn in 2 hours.

3. In this term the students should also be taught to spin on the Magan Charkha.

4. The speed of spinning on the Magan Charkha (including winding) at the end of the term should reach 2½ lattis of 24 counts yarn in an hour.

5. The daily average speed of spinning (including ginning and carding) for the term on the Yeravda Charkha should reach 1¼ lattis of 40 counts yarn in 2 hours, and on the Magan Charkha (including carding) 1½ lattis of 24 counts yarn in 1 hour.

6. The total production for six months will be 45 goondis of 40 counts yarn weighing 9 chataks and 54 goondis of 24 counts yarn weighing 1 seer 2 chataks.

7. The wages for 40 counts yarn @ Rs. 6|4|- per seer will be Rs. 3-8-3, and for 24 counts yarn @ Rs. 2|14|- per seer (including carding) will be Rs. 3-3-9 The total earnings for this term will be Rs. 6|12|-.

GRADE V: SECOND TERM

1. In this term the student should be taught to spin yarn to 60 counts.

2. The following subjects should be taught with the correlated theoretical knowledge:—

(*a*) The length of yarn necessary to produce 1 yard of cloth;

(*b*) The necessary twist required in one inch of yarn for a particular count.

(*c*) The ratio of the revolution of the spindle to the revolution of the wheel.

3. In this term the students should also be taught how to straïghten the spindle.

4. During this term the students should also gain a comparative knowledge of the different types of charkha, such as the Yeravda Charkha, the Magan Charkha and the Savli Charkha.

5. At the end of the term the speed of spinning on the takli (including winding) should reach 3 lattis of 16 counts yarn in three hours.

6. At the end of the term the speed of spinning (including ginning and carding) 60 counts yarn should reach 2 lattis in 2 hours, and the speed of spinning (including carding) 28 counts yarn on the Magan Charkha should reach 3 lattis in one hour.

7. The daily average speed of spinning during this term will be 1¼ lattis of 60 counts yarn and 2 lattis of 28 counts yarn. The total production will be 45 goondis of 60 counts yarn weighing 6 chataks and 72 goondis of 28 counts yarn weighing 1 seer 4½ chataks.

8. The wages for 60 counts yarn @ Rs. 11|4|0 per seer will be Rs. 4-3-6, and the wages for 28 counts yarn @ Rs. 3-10-0 per seer will be Rs. 4-10-3. The total earnings will be Rs. 8-13-9.

PROBLEMS CONNECTED WITH THE MECHANICS OF SPINNING.

1. Why does the pulley lean on the slanting side of the spindle?

2. If the rate of revolution of the spindle is to be increased, which should be increased: the diameter of the driving wheel or of the intermediate wheel?
3. Uses of the different kinds of mal (cotton, gut and leather). Principle of belting
4. Uses of jyotar.
5. Where should the handle of the carding-bow be fixed? Principle of balance.
6. The advantage of keeping the two mals of the Savli charkha parallel.
7. Where should the handle be kept in the wheel of the Yeravda Charkha, according to the grain of the wood?
8. What is the effect and difference in the friction of wood on wood and wood on iron?
9. Where should the pulley be set in the spindle?
10. The different effect of brass, ball iron and wood bearings on the axle of the wheel, from the point of view of friction, with regard to iron axles and wooden axles.

Income per student for five years.

First Year	Rs.	3	9	0
Second „	„	9	5	3
Third „	„	11	9	9
Fourth „	„	15	11	3
Fifth „	„	15	9	9
Total income for five years	„	55	13	0

Reckoning a deduction of 25 % the total income for five years stands at Rs. 41-13-9.

WEAVING SECTION

GRADES VI & VII

1. The craft of weaving is so wide in scope that it is not possible to give the students a complete training in this craft in two years. Two alternative courses have been suggested. A school may provide for both the courses allowing the student to choose one. In either case, however, the course of two years will serve only as an introduction, and a student who wishes to have a complete knowledge of this handicraft should continue his training after this period.

2 At this stage the student will be only 13-14 years old. The course described is therefore of an elementary nature.

3. At the end of five years the student should have a fairly high knowledge of spinning. It has, therefore, not been included in the school time-table, but the students should continue to spin at home, and the school should make the necessary arrangements for the students to get the proper value of yarn produced at home—either in money or in cloth.

GRADE VI—WEAVING.

First Year.

1. The course of weaving has not been divided into half-yearly terms, but into two terms of a year

each, in consideration of the special nature of the craft of weaving.

2. The following processes should be taught to the student in the first year:—

(*a*) Winding.

(*b*) Reeling.

(*c*) Piecing.

(*d*) Warping (on the warping frame).

(*e*) (i) Spreading and distributing.

(ii) Sizing.

(*f*) Double-warp weaving (on the hand-loom).

3. At the end of the year the speed in the above processes should be as follows:—

(*a*) Winding	=	5 goondis in an hour.
(*b*) Reeling	=	3 goondis in an hour.
(*c*) Piecing	=	2½ punjams (60 holes of a reed) in an hour.
(*d*) Warping	=	2½ punjams (60 holes of a reed) in an hour.
(*e*) (i) Spreading & Distributing (ii) Sizing		Both the processes in 3 hours.
(*f*) Weaving (with filled bobbins)		2 yards in 3 hours.

4. In a year the total length of cloth woven by each student with all the processes should be 108 yards.

5. Wages at the rate of 0-12-6 per piece of 10 yards will be Rs. 8-7-0.

Second Year.

1. In this year, too, the student should continue the training of double warp weaving—but he should also be taught pattern-weaving such as honey-comb towels, coloured coatings, etc

2. During this year, the student should learn to calculate, with the correlated theoretical knowledge, the particular count of yarn necessary for a particular type of punjam.

3 The speed of weaving at the end of the year (on the fly-shuttle loom with filled bobbins) should be 3½ yards in three hours.

4. The total amount of cloth woven in the year by each student should be 216 yards. Wages at the rate of 0|1|3 per yard will be Rs. 16|14|-

The income per student for two years.

	Rs.	a.	p.
First Year	8	7	0
Second Year	16	14	0
Total	25	5	0

Deducting 25%, the income for two years amounts to Rs. 18-15-9.

TAPE AND DUREE WEAVING

First year

1. In this department the students should be taught the following processes:

Twisting the yarn.
Rope-making.
Preparing the warp.
Preparing the heddles.
Weaving tapes, durees, asans and carpets of different designs.

2. In the first year, the students should be taught to weave white and coloured tapes, lace, white and coloured asans, and white durees.

3. Different rates of wages are paid for the weaving of tapes, asans and durees, and the wages are higher than the wages for the weaving of ordinary cloth. However, for the purpose of calculation, the wages for weaving for this year have been reckoned as Rs. 8|7|-.

Second Year.

1. During this year the students should be taught how to weave coloured durees and carpets. The whole year will be devoted to this work as the durees and carpets will be of different designs.

2. The wages per student for the year have been reckoned as the same as the wages for ordinary weaving, *i. e.* Rs. 16|14|-.

PROBLEMS CONNECTED WITH THE MECHANICS OF SPINNING & WEAVING.

1. The principles of lever.

The uses of the different kinds of levers should be explained by practical work in connection with the hand-loom.

The uses of the lever in the loom for shedding motion.

2. Principles of wedge and Helical tooth gearing wheel practically, in connection with the ginning machine.

3. What will be the effect on the count of yarn and speed of spinning, if the spindle of the takli be made of wood instead of iron?

4. What will be the effect on the speed of spinning if the disc of the takli is light or heavy?

5. What is the relation, and proportion in size and length, of the spindle and the disc?

6. What should be the position of the disc on the takli?

7. Advantages and disadvantages of the U and and V shaped pulleys.

8. Necessary information re: deflection of beams. What is the effect of graining on strength of wood?

9. Principle of crank in connection with the Magan Charkha.

GENERAL MECHANICS.

1. The advantage of supporting the upper wheel of the grinding mill on the central pin. A lever can be used for increasing or decreasing the pressure on the lower wheel.

2. The pulley used for drawing water from the well is a kind of lever

3. What is the difference in strength between cantiliver, vertical and sloping pillars ?

4. The pendulum of the clock.

5. Resultant of forces—to be taught by practical application.

Estimate of the floor space required for a building of a complete school with seven classes having spinning and weaving as the basic craft.

1. Five spinning rooms for grades I to V	600 sq. ft. x 5 =3000 sq. ft.	
2. Carding space for 150 pupils—		
20 pupils working at a time.	40 sq. ft. x 20 =800 sq. ft.	
3. Weaving—for Grades VI & VII		
60 pupils—20 looms	1800 sq. ft.	
4. Store-rooms:—		
Weaving	600 sq. ft.	
Slivers	150 sq. ft.	
5. Two classrooms	600 sq. ft.	
6. Library, office, and school store.	600 sq. ft.	
7. Veranda	1150 sq. ft.	
8. Walls	1500 sq. ft.	
	11,000 sq. ft.	

TOTAL INCOME FOR SEVEN YEARS

Spinning	Rs.	41	13	9
Weaving	Rs.	18	15	9
Total	Rs.	60	13	6

The teacher's salary has been calculated at the rate of Rs. 25 per month.

Total salary of the teacher for seven years	Rs.	2,100
Reckoning 30 students per teacher, the total income for seven years is	Rs.	1,825

GENERAL SUGGESTIONS

Although this scheme has been prepared in fair detail, it cannot be considered the final scheme, and many improvements can be made on it. The following important points, however, might be noted:

1. This scheme solves, to a great extent, the problem of the teacher's salary, which has been reckoned at an average figure of Rs. 25 per mensem.

2. A total deduction of 25 per cent on the full number of working days has been estimated.

3. Since we have to use the craft as a means of education, and not only to teach it as an industry, the speed of work has been reckoned as slower than the speed ordinarily attained

4. The wages have been reckoned on the basis of the wages paid by the Maharashtra Branch of the All-India Spinners' Association in 1937.

5. It may be assumed that the actual income will exceed the figures given here, and can on no account be less. If it falls below the estimate, it may be taken as a sure indication of inefficiency either in the staff or the implements.

6. The articles of equipment noted down in the lists given should be used as centres of interest for the general education of the student.

7. The test to see whether a student has attained the standard required at the completion of the course, will be the rate of earning—working an 8 hours day—for two months, *i. e.* 48 working days. If he can earn Rs. 12 (at the rate of 4 as. per day) he should be considered to have passed the test.

8. This scheme provides that on completion of the course every student will become a self-supporting unit.

9. During the first year, spinning on the takli can and should be taught on the mass drill method.

10. Music should be taught with spinning on the takli or the charkha. This will add to both the pleasure and the speed of spinning.

11. It is expected that the second period of seven years will bring more successful results than the first period of seven years.

12. It will be possible for boys to remain at school for a longer period only if they are able to render some financial contribution to the home. The school, therefore, should make arrangements for them to undertake spinning at home, and should see that the boys receive the proper wages in return.

List of Accessories: Spinning department

Spinning

	Rs.	as.	p.
Takli	0	1	9
Winder	0	1	0
Takli-case	0	2	0
Yeravda Charkha	2	8	0
Charkha Winder	0	2	0
Oil-can	0	1	0
Piece of black coloured cloth 27″ × 9″	0	2	0
Miscellaneous	0	1	3
Total Rs.	3	3	0

Ginning

	Rs.	as.	p.
Wooden Plank 4″ × 6″ × 1″	0	1	0
Rod	0	4	0
Village Gin	1	10	0
Jaw-bone of a fish	0	4	0
Total Rs.	2	3	0

Carding	Rs.	as.	p.
Yuddha-pinjan (Little bow)	0	8	0
Striker	0	2	0
Wooden plank for making slivers	0	4	0
Handle	0	3	0
Rod for making slivers	0	1	0
Gut etc.	0	7	0
Mat	0	2	0
Andhra bow	0	5	0
Total Rs.	2	0	0

Tools etc.			
Hammer	0	7	0
Anvil	0	8	0
File	1	0	0
Chisel	0	9	0
Small saw	0	8	0
Plane	1	0	0
Drill-Machine	2	12	0
Knife	0	4	0
Scissors	0	6	0
Screw-driver	0	6	0
Balance (small) with weights 1\|16 tola to 2 tolas	2	0	0
Balance (large) with weights ½ ch. to 1 seer	2	14	0
Total Rs.	12	10	0
Grand Total Rs.	20	0	0

Note: We have given a rough estimate of tools and accessories. Therefore the prices may vary slightly.

List of Accessories for the Weaving of cloth, durees and tapes.

Tape Weaving

	Rs.	as.	p.
Twisting wheel	1	8	0
Heddles frame	0	8	0
Beater or striker	0	1	0
Total Rs.	2	1	0

Weaving of asans & durees

	Rs.	as.	p.
Heddles frame	0	12	0
Fork	0	8	0
Seat or rest, supports, props, etc.	0	12	0
Total Rs.	2	0	0

Warping

	Rs.	as.	p.
Distaff or chakri	0	4	0
Winder	0	1	0
Spool	0	0	6
Tin bobbins	0	12	0
Warping wheel	1	8	0
Warping frame	2	0	0
Buckets	0	7	0
Ropes etc.	0	7	0
Total Rs.	5	8	0

Sizing

	Rs.	as.	p.
Poles of teak-wood	3	4	0
Poles of bamboo	0	8	0
Two brushes	5	0	0
Total Rs.	8	12	0

Weaving

	Rs.	as.	p.
Reeds	3	0	0
Hand-loom	1	8	0
Fly-shuttle loom	7	0	0
Roller	1	8	0
Hand-loom shuttle	0	4	0
Fly-shuttle	0	8	0
Beam	2	8	0
Level bottle	0	12	0
Yard-stick	0	3	0
Poles etc.	1	0	0
Thick ropes etc.	1	8	0
Total Rs.	19	11	0

Making Heddles Frame

	Rs.	as.	p.
Reel	1	0	0
Cylinder & wooden pins	0	4	0
Miscellaneous	0	12	0
Total Rs.	2	0	0
Grand Total Rs.	40	0	0

This is only a rough estimate of the prices of accessories and may differ according to local conditions.

List of Accessories for Spinning, Carding and Weaving for a full school of seven grades of 30 students each

		Rate	Cost
1.	125 Folding Charkhas	Rs. 2 8 0 ea.	Rs. 312 8 0
2.	30 Carding Sets, including all accessories, but excluding Andhra bow	Rs. 1 11 0 ea.	50 10 0
3.	*50 Taklies and 50 winders	Re. 0 2 9 per pr.	8 9 6
4.	5 Hand Guns	Rs. 1 10 0 ea.	8 2 0
5.	15 Wooden Boards and brass rods	Re. 0 5 0 per pr.	4 11 0
6.	5 Magan Charkhas	Rs. 6 0 0 ea.	30 0 0
7.	5 Savli Charkhas	Rs. 1 4 0 ea.	6 4 0
8.	Carpentry Tools		25 0 0
9.	20 Looms with all accessories	Rs. 25 0 0 ea.	500 0 0
10.	Miscellaneous		54 3 6
		Total Rs.	1,000 0 0

NOTE:—The above prices are approximate, and are subject to market fluctuations and to prices varying from district to district.

Working Capital

Stock of Cotton . . Rs.	300	0	0
Stock of Spinning Wheels and other Accessories .	100	0	0
Stock of slivers, weaving materials, etc.	100	0	0
Total Rs.	500	0	0

*Each students is expected to buy taklies and winders. But if a school proposes to supply these accessories it will have to spend about Rs. 125|- more over this head.

A SEVEN YEARS' COURSE OF CARD BOARD, WOOD AND METAL WORK AS THE BASIC CRAFT.

The course has been divided into two parts:—

(*a*) A course of card-board work

(*b*) A course of wood and metal work.

1. As children under nine are not able to handle hard materials such as wood or metal, or the more difficult tools necessary for wood or metal work, card-board work should be taught as the basic craft for the first two grades of the course.

2. Wood work should begin in grade III and work with metals used in connection with wood work should be introduced in grade V.

3. In grades VI and VII the pupil may choose either wood or metal work, according to his natural inclination.

4. There is also an optional course of wood and metal work as basic craft for grades VI and VII, and an optional course of card-board work for three months in grades VI and VII.

5. In order to draw the fullest educative value from card-board, wood and metal work as a basic craft, the following conditions must be fulfilled:—

(i) The system of instruction to be employed should be methodical, and must be imparted by trained teachers in a systematic way. Skilled artisans cannot be expected

to convey to the students the fullest educative value and implication of the training in handicraft.

(ii) A well-chosen pedagogical series of models of exercises should be furnished as a guide for instruction. These models must be useful objects which can be used in daily life, but they must also be simple and beautiful from the aesthetic point of view. Therefore this series of models must, from its very nature, vary and be elastic in the light of its utility in rural and industrial areas.

CARD-BOARD WORK.

GRADE I.

Time required—2 hours per day.

1. *Practical.*—A series of exercises which involve the modification of materials such as card-board, paper and cloth, by means of one or more tools or instruments in a prescribed way and for a particular end. Thus the method embraces say 20 models, of which at least eight must be made by every pupil during the first year of schooling:—

(1) Routine board (for school or class use).
(2) Box for collection of specimens (nature study work).
(3) Simple albums for
 (*a*) History work.
 (*b*) Nature-study work.
(4) Blotting-pad.
 (*a*) simple.

(*b*) double

for use at school and also for sale.

(5) Portfolio
(6) Note-book binding.
(7) Book-carrier.
(8) An extra model

2. *Theoretical.*

(1) Tools and their uses.

(2) Simple measurements involving the use of

(*a*) inch, foot and the metric system.
(*b*) weights—seers, chataks and tolas.

(3) Counting—simple problems in addition and subtraction.

(4) Recognition of simple geometrical forms.

CARD-BOARD WORK.

Grade II.

Time required:—2½ *hours per day.*

DRAWING: Introduction; necessity for drawings; method of preparing such drawings.

Use of the following instruments:—Rule, set-square, compass.

Parallel, perpendicular, oblique lines, and lining in.

Circle—centre, radius, circumference.

Square, quadrangle, sexagon, octagon.

Graphical representation of the children's own work.

Practical.

1. Colour decorations on hand-made paper for dozen sheets of paper.

2. Execution of any eight of the following models:—

(*a*) Sliding box—for keeping brushes, pencils, pens etc.

(*b*) Slanting quadrangular tray for keeping nibs, pencils, pens etc.

(*c*) Sexagonal tray for the same purpose; paper mounting.

(*d*) Sexagonal box with cover (cloth mounting).

N. B.—Models of Nos. (*c*) and (*d*) should be given to the pupils to serve as models in his future private activities.

(*e*) Box with hinged cover.

(*f*) Sexagonal box with hinged cover.

(*g*) Blotting pad.

(*h*) Portfolio.

(a) simple.

(b) complex.

(*i*) Round box.

(*j*) Two boxes of different kinds.

(*k*) Album, simple, with pad, leather covering.

WOOD-WORK

Grade III.

Time required:—3½ hours, with an interval of 10 minutes.

Theoretical and Practical work combined.

1. Tools and their uses.

2. Execution of at least seven exercises (selection must be the child's—design to be supplied).

3. Two extra models from the child's own design.

N. B.—In schools belonging to rural areas, the following models are suggested —

(*a*) Handle of khurpi.
(*b*) Ladder.
(*c*) Small stool for water vessel.
(*d*) Stand for filtering water.
(*e*) A small desk for writing and reading.
(*f*) (i) A small bookshelf (open), (ii) rack for keeping clothes, (iii) alna, (iv) wall rack.
(*g*) A corner shelf for keeping household things.
(*h*) A simple wooden cot.
(*i*) A wooden box according to requirements

4. Sawing, planing, method of sizing, boring, grooving, simple joinings. All these should be taught through making the objects or exercises of the pedagogical series.

WOOD-WORK

Grade IV.

Time:—3½ *hours daily, with an interval of 10 minutes.*

Practical.

1. (*a*) Ten models to be executed.
 (*b*) Two additional models from the pupils' own drawing.
 (*c*) 4 kinds of joinings.

2. *Drawings and graphic representations of the exercises.*

(*a*) How to draw lines.
(*b*) The use of the set-square.
(*c*) Erecting perpendiculars.
(*d*) How to obtain various angles.
(*e*) Method of setting the compass.
(*f*) Use of the compass and drawing board.
(*g*) Use of rubber.
(*h*) Use of T-square.

3. *Orthographical projection.*

(*a*) The dihedral angles.
(*b*) Analysis of models.
(*c*) Definition of the following: Point, line, angle, square, circle (centre, radius, circumference).

Theoretical.

1 Growth of trees.

(*a*) Notes dealing with seasoning, shrinkage.
(*b*) Parts of growing trees.
(*c*) Seeds, germination.
(*d*) Roots and their functions.
(*e*) Root food in soluble form.
(*f*) Ascending sap.
(*g*) Evaporation from leaves.
(*h*) Carbon extracted from air.
(*i*) Life-period of trees.
(*j*) Time for felling.

Practical demonstration.

Transverse section of a tree.

(*a*) Annual ring.
(*b*) Cause of visibility of rings.
(*c*) Composition of rings.
(*d*) Heart wood.
(*e*) Sap wood.
(*f*) Bark and its use.
(*g*) Growth of bark and pith.

Mechanics of wood work.

(*a*) Matter.
(*b*) Measurement.
(*c*) Metric system: (i) fractions, (ii) rule of three.
(*d*) Weight. (Indian system as well as international and English).
(*e*) Density.
(*f*) Specific gravity.
(*g*) Force and work.
(*h*) Graphic representation.
(*i*) Parallelogram of forces.
(*j*) Resolution of forces.
(*k*) Mechanical devices.
(*l*) Levers.

Geography of Wood.

Kinds of indigenous wood.

(*a*) Soft wood. Hard wood.
(*b*) Reeds and bamboos.
(*c*) Wood-growing provinces of India.
(*d*) National income from wood.
(*e*) Export and import.

N. B.—The theoretical instruction should be imparted as much as possible through the practical

performance of the work. The theoretical terms should be pointed out only while drawing after the execution of a model.

WOOD-WORK

GRADE V.

Time:—3½ *hours daily, with an interval of 10 Minutes.*

Practical.

1. Execution of ten models or exercises.

2. Two extra models from the student's own design.

3. Colouring. High polishing.

4. Preparation of polish.

Theoretical.

1. Structure of wood.
 (*a*) Carbon (C).
 (*b*) Oxygen (O).
 (*c*) Nitrogen (N).
 (*d*) Hydrogen (N).
 (*e*) Sulphur (S).
 (*f*) Protoplasm.
 (*g*) Charcoal.

2. Proper introduction of metals used in connection with wood-work.

 (*a*) Iron:—The ore, smelting. Nature of cast iron (experiment and test). Wrought iron. Conversion of cast iron into wrought iron.
 Steel. Experiments.
 Conversion of iron into steel.

Properties of steel.
Hardening and tempering.

(*b*) Brass. An alloy, zinc 1 part, copper 2 parts by weight.
What is an alloy? Properties of brass.

(*c*) Copper. The ore. Process of extraction.

(*d*) Zinc. The ore Process of extraction.

WOOD-WORK

Grade VI.

Time required:—3½ hours daily, with an interval of 10 Minutes.

During this year, the pupils must work mainly on a productive basis, and can choose one of the two basic crafts—wood or metal.

Wood work.

Execution of articles (useful objects which must be saleable in the market).

Theoretical.

1. Notes on the parts of tools and how they are made.

2. Notes on seasoning timber
 (*a*) Tree containing sap.
 (*b*) Condition of wood after cutting.
 (*c*) Evaporation and shrinkage.
 (*d*) Necessity for seasoning.
 (*e*) Different methods of seasoning.
 (i) natural seasoning.
 (ii) artificial seasoning. Hot water, running stream, smoke drying.

3. Elementary knowledge of costing of the articles

WOOD-WORK

Grade VII.

Time required:—3½ hours daily, with an interval of 10 Minutes.

Practical.

1. Manufacture of articles saleable in the market and execution of commodities against local orders, if forthcoming. Each pupil should be made so efficient as to earn Rs. 5 per mensem.
2. High polishing.
3. Carving.
4. Designing.
5. Keeping accounts. Method of costing.

Theoretical.

The usefulness of wood in general.

Proposed planned model or exercise series.

GROUP A.

1. Wall-rack.
2. Propeller: (a) simple, (b) for actual use.
3. Sliding box for pencil, pen, brush, etc.
4. Stools of different kinds.
5. Writing desk.
6. Pot stand.
7. Flag stand.
8. Book stand.
9. Alna of different kinds.
10. Mallet.
11. Wooden trays of different shapes.

12. (a) Table, (b) Axe handle, (c) knife handle, etc.

13. Cot.
14. Corner shelf.
15. Small almirahs with doors.

Extra models as planned by students.

GROUP B.

1. Spoons of various shapes.
2. Wooden trays out of one piece of wood.
3. (a) File carriers.
 (b) Wall-rack for lamp.
4. Candle stands of various shapes.
5. Stands of various shapes.
6. Simple writing table.
7. Portable folding table.
8. Boxes of different kinds and of different types of joining.

Extra models as planned by the pupils.

GROUP C.

Small boat.
Chair.
Tables.
Clock frames.
Ladder.
Extra models as planned by the pupils.

The above lists are tentative suggestions. The models executed will vary according to local conditions and requirements.

Syllabus in Metal-work for Grades VI and VII.

The underlying principles of introducing light metal work are the same as those for other work, *viz.*, the modification of materials such as iron, copper, brass, zinc, or any other alloy by means of one or more tools in a prescribed way, for a particular end or object.

List of some of the models to be executed.

1. Simple door lock.
2. Chain lock.
3. Hinges.
4. Khurpi.
5. Various stands for iron.
6. Paper-boring instruments.
7 Caliper.
8. Soldering instrument.
9. Screw-drivers.
10. Compass.
11. Chisel.
12. Farm knife.
13. Candle-stands.
14. Book-stand.
15. Wall candle-stand.
16. Stands (of various sizes) for keeping utensils.
17. Fruit plucker.
18. Trays of different shapes and sizes.
19. Boxes.
20. Farm rake.
21. Sun-dial.

At least fifteen of the above and extra two additional objects, which must be of the pupil's own

design, must be executed. They must be useful objects.

Theoretical and Practical work combined.

(*a*) Oxidising.
(*b*) Filling.
(*c*) Hardening and tempering.
(*d*) Blackening process.
(*e*) Cleaning and polishing.

An Optional Course in card-board work for the students of

GRADE VII.

Those who have already taken card-board work during the first two years of the basic course should be given an opportunity of repeating the work in card-board, and of applying the higher technique acquired through their training in wood and metal work. Those who have taken other basic crafts *viz.*, spinning and weaving should also have an opportunity of learning something of card-board work.

A THREE MONTHS' COURSE IN CARD-BOARD WORK. *Practical.*

Series of exercises, pedagogically selected, of objects required in school, office and at home.

1. Routine board.
2. Pencil tray.
3. Pencil box.
4. Sexagonal tray.
5. Blotting pad and writing board (simple).
6. Blotting pad with case for paper.
7. Letter carrier.

8. Card-board box (standing).
9. Portfolio: (a) simple, (b) complex.
10. Boxes of different shapes.
11. Note-book binding
12. Album.

Theoretical.

1. Point, line, angle, perpendicular, parallel lines, square, circle (centre, radius, circumference).

2. Graphical representations of works or models made.

3. Measurement:—inch, foot, the metric system.

An optional course in wood or metal-work during the last two years of the basic course.

GRADES VI & VII.

Time required:—3½ hours daily, with an interval of 10 Minutes.

1. Introduction to tools:—Their use and how to handle them.

2. Introduction to drawing instruments:—Their use and how to handle them.

3. Demonstration of the use of drawing instruments on:—

Parallel, perpendicular, oblique lines.
Method of setting the compass.
Projection:—Plans, elevation, and section.
Circles:—Centre, radius, circumference.
Square, quadrangle, sexagon, octagon, etc.

4. Graphical representation of one's own work.

Practical.

1. At least 15 models to be executed by each pupil, and

2. Through models, eight different kinds of joinings.

3. Polishing.

4. Colouring.

Theoretical and practical demonstration in the following:—

1. Matter.
2. Measurement.
3. Metric system: (a) fractions. (b) rule of three.
4. Weight (Indian system as well as international and English).
5. Density.
6. Specific gravity.
7. Force and work.
8. Graphic representation.
9. Parallelogram of forces.
10. Resolution of forces.
11. Mechanical devices.
12. Lever.

List of Necessary Equipment.

Equipment for card-board work for a group of 30 Students taking the Optional Course in Grade VII.

		Rs.	a.	p.
1	Working Table	40	0	0
2	Almirahs	50	0	0
30	Knives	15	0	0

		Rs.	a.	p.
2	Working Benches ...	15	0	0
30	Scales ..	15	0	0
4	Iron Squares (flat) .	5	0	0
30	Working Boards .	45	0	0
30	Paper-Cutting Knives of bamboo or hard-wood	7	8	0
10	Scissors .	4	12	0
	Materials:—Paper, card-board, cloth leather, etc.	60	0	0
		260	4	0

EQUIPMENT FOR A GROUP OF FIFTEEN BEGINNERS IN THE CARD-BOARD CLASS.

		Rs.	a.	p.
1	Almirah ..	25	0	0
15	Knives	10	0	0
2	Working Benches .	12	0	0
1	Working Table ...	12	0	0
15	Scales	7	0	0
2	Iron Squares	2	8	0
15	Working Boards	22	8	0
7	Scissors ..	2	0	0
17	Paper-Cutting Knives of bamboo...	5	0	0
	Materials:—Paper, card-board, cloth, leather, etc.	38	0	0
		136	8	0

Equipment for Wood work for a Group of Fifteen Students taking the Optional Course in Grades VI and VII.

		Rs.	a	p.
15	Single or 8 double working benches:—framed tops, hard wood, fitted with cupboard for keeping tools, with two vices	250	0	0
15	Saws of different types	45	0	0
30	Planes	98	0	0
15	Scales on foot rules	15	0	0
15	Try squares	20	0	0
15	Knives	15	0	0
5	Screw drivers	5	0	0
1	Grinding stone	6	0	0
2	Hand drills	6	0	0
15	Mallets	15	0	0
1	Set of Bits	18	0	0
15	Gauges	15	0	0
5	Compasses	2	8	0
40	Chisels (Handled)	28	0	0
1	Pincers	2	8	0
15	Iron Scrapers	15	0	0
10	Punches of different types	8	0	0
	Miscellaneous	50	0	0
	Nails, screws, wood, etc.	300	0	0
		914	0	0

Materials and Equipment required for a Group of Fifteen Students taking the course of Metal-Work in Grades VI & VII.

			Rs.	a.	p.
3	Anvils.				
15	Vices.				
15	Hammers				
1	Bellows				
20	Files of different types				
1	Drill.				
1	Plate cutter.				
	Miscellaneous	(Appr.)	500	0	0
	Materials—Copper, iron & brass sheets, etc.		100	0	0
		Total .	600	0	0

N. B.—The above prices are only approximate, and will vary from place to place according to local conditions.

Class Rooms.

Card-Board Working Room for a group of 30 pupils.

Closed space required:—45 ft. by 25 ft.

Wood-working room.

The shape of a wood-working room depends on the arrangement of the benches. A room of 60 ft. by 24 ft. is a good size for accommodating 30 pupils at a time and 45×25 for a group of fifteen.

There should be a closed store-room attached to the working-room.

Metal-working room for a group of fifteen students.

Space required:—45 ft. by 25 ft., with a closed room.

N. B—Card-board working room may serve the purpose of drawing work and that of a school museum.

MOTHER TONGUE AND HINDUSTANI.

GRADE I.

1. *Oral Self-Expression.*

Conversation centering round names and description of different parts of the human body, clothes, class-room, equipment and processes in craft work, natural phenomena, events in daily life.

2. *Stories.*

(*a*) Myths and legends
(*b*) Folk-tales.
(*c*) Nature myths.
(*d*) Fables and stories of animal life.
(*e*) Stories of life in different lands.
(*f*) Tales of primitive man and life in ancient times.
(*g*) Stories of school life and family life.

N. B.—Items *e.*, *f.*, and *g.*, will also cover the syllabus in social studies.

3. *Recitation of simple poems.*

4. *Dramatisation.*

5. *Ability to read simple words and sentences.*

The work in mother-tongue will be entirely oral during the pupil's first six months in school.

GRADE II.

1. *Oral Self-Expression.*

 (*a*) Extension of the child's vocabulary—recapitulation of new words and expressions learnt by the children in their craft work, mathematics, nature-study and social studies.

 (*b*) Descriptive self-expression:—describing objects, people and happenings within the child's environment; describing the different village crafts and occupations, fairs, festivals, etc.

2. *Recitation and dramatisation.*

3. *Stories.*

A continuation of the syllabus outlined in Grade I.

4. *Reading.*

Simple books which should contain lessons on the following:—

(*a*) Life of nature.
(*b*) The child's social environment, his home, school and village.
(*c*) Health and hygiene.
(*d*) Local agencies of community welfare.
(*e*) Crafts.
(*f*) Festivals.
(*g*) Stories and legends.
(*h*) Life of children in other lands.

5. *Writing.*

Simple words and sentences.

GRADE III.

1. *Oral Self-Expression.*

Continuation of the work detailed in Grade II, telling of simple stories.

2. *Reading.*

Simple books whose material should be on the same lines as those outlined in the syllabus for Grade II together with life stories of some great benefactors of mankind, *e. g.*, Buddha, Christ, Mohammad.

(*a*) Reading aloud, with special attention to clearness of pronunciation and expression.

(*b*) Silent reading of esay passages.

3. *Writing.*

(*a*) Writing of short sentences from dictation.

(*b*) Writing of simple letters, descriptions and stories.

(*c*) Daily record of weather observations.

4. *Recitation and dramatisation.*

GRADE IV.

1. *Oral Self-Expression.*

In addition to work outlined in Grades I, II and III.

(*a*) Making of short speeches on a given subject in connection with craft work, social studies and general science.

(*b*) Taking part in discussions on subjects of living interest.

N. B.—The above two purposes can be fulfilled by starting a discussion group or a debating club for the members of grades IV and V.

2. *Reading.*

The reading material in grade IV, in addition to the topics already outlined in Grade III, should contain the following:—

(*a*) Stories of village crafts and craftsmen. Stories of important arts and crafts in different lands and ages, *e. g.*, building, cloth making, pottery, etc.

(*b*) Stories of great inventors and inventions.

(*c*) Stories of great discoverer and discoveries. (*See* the syllabus in Social Studies).

(*d*) Life of people in certain typical regions of the world.

(*e*) Stories of some great benefactors and liberators of mankind, *e. g.*, Zoroaster, Socrates, Husain, Lincoln, Pasteur, Davy, Franklin, Florence Nightingale, Tolstoy, Booker Washington, Sun Yat Sen, Gandhi (to be covered in Grades IV and V).

N. B.—All these topics will be closely correlated with work in Social Studies.

3. *Writing.*

(*a*) Creative Writing:—stories, original compositions.

(*b*) Writing from dictation.

(*c*) Writing of simple and business letters.

(*d*) Keeping a daily and monthly record of individual and class progress in the basic craft, and other interesting experience.

(4) Contribution to a magazine for Junior Pupils (Grades IV and V) and preparing a news bulletin.

N. B.—Amongst other topics, this magazine should include the following:—

(*a*) A monthly record of the progress of the class in the basic handicraft.

(*b*) Daily and monthly weather reports.

(*c*) Health reports of class, family and village.

(*d*) Reports of geographical and social survey.

(*e*) Current events.

GRADE V.

In addition to the work—oral, written and reading—outlined in the syllabus for Grade IV which will be continued, the following new items will be introduced:—

1. A simple and practical knowledge of the construction of the mother tongue and the function of words.
2. The use of the dictionary, the list of contents and the index, etc.
3. An introduction to Basic Hindustani, and its relation to the child's own language. Learning of the Urdu or Hindi script whichever is not known to the child (in Hindustani speaking areas) or one of them at his

or her option (in other areas). Simple conversation—Primer and first reader in Hindustani.

GRADE VI.

1 *General Reading.*

Individual reading on general subjects under the guidance of the teacher, of simple books, pamphlets and articles dealing with topics outlined for Grades IV and together with the following:—

(*a*) Recent geographical expeditions, *e. g.*, Everest, North Pole.

(*b*) Work of community welfare and community hygiene, including illustrations from other countries.

(*c*) Agriculture in India and in other lands. The life of the farmer in India and in other lands.

2. *Study of Literature.*

(*a*) A representative collection of selections from the literature in the mother tongue.

(*b*) Selections from the masterpieces of various Indian literatures. (Literary translations in the child's own language).

3. A more advanced study of the structure of the child's own language.

Formation of words.

Formation of sentences.

Symmetry of structure—elements of a good style.

4. *Self-Expression—Oral and Written.*

In addition to the syllabus outlined for Grades IV and V.

(*a*) Preparing a daily news-sheet.
(*b*) Editing a senior school magazine, for Grades VI and VII.
(*c*) Preparing notices, announcements and advertisements.
(*d*) Filling up business forms.
(*e*) Writing letters of social utility—invitation, condolence, apology, etc.
(*f*) Ability to give a short speech or to take part in a discussion on a given subject.

4. *A more advanced study of Basic Hindustani.*
Second Reader.
Writing.
Simple conversation

GRADE VII.

1. *General reading* as outlined in the syllabus of Grade VI.

2. *Study of Literature.*

(*a*) A more advanced selection from the best writers in the child's mother tongue, arranged chronologically and with a simple presentation of the history of the literature of the mother tongue.

(*b*) A more advanced selection from the masterpieces of various Indian literatures, translated into the child's mother tongue.

(*c*) A Selection from the masterpieces of world literature, translated into the child's mother tongue.

N. B.—These text-books should also include:—

(*a*) A few passages of advanced literature for intensive study.

(*b*) Extracts from the scriptures and religious writings of the principal world religions.

3. A more advanced study of the structure of the child's own language with an elementary study of the history of that language and its relation to the other languages of India.

4. *Self-Expression in speech and writing.*

(*a*) Continuation of the work outlined in the syllabus for Grade VI.

(*b*) Preparing report of completed work, such as health compaigns, village sanitation projects etc.

(*c*) Preparing plans or instructions for a proposed piece of work.

(*d*) Preparing a small pamphlet on any subject chosen by the student himself.

(*e*) The senior students, thirteen to fourteen years), will organise their own discussion groups and dramatic clubs like the juniors (ten to twelve years). These discussions and entertainments should be more intimately related to the life of the village, and should make an attempt at

attracting the adult population of the village.

During the last two years, the students will be expected to organise programmes of socially useful work in the villages, such as adult education, health campaigns, the celebration of national and cultural festivals, etc. These should provide occasions for the students to give short and simple talks to the villagers on practical subjects

5. *A more advanced study of Hindustani.*

(*a*) Ability to make short speeches and to carry on conversation in Hindustani.

(*b*) Writing simple personal and business letters.

(*c*) Reading simple books, periodicals and newspapers.

MATHEMATICS

Grade I.

First Term.

(1) Counting up to 100 (with concrete objects); giving an idea that our system of counting is based upon units of ten.

(2) Counting by tens, fives and twos up to 100.

(3) Recognition of big and small numbers at sight.

Second Term.

(1) Counting up to 160 (with concrete objects) extension of the idea of the decimal system in counting.

(2) Mental addition and subtraction of numbers not exceeding ten Thorough mastery of addition and subtraction tables up to 10 is necessary.

(3) Meaning of signs + and — .

(4) Simple problems in addition and subtraction up to 10.

(5) Writing of numbers up to 160.

(6) Simple measurements involving the use of
(*a*) yard, foot inch and hath (18″).
(*b*) seers, chataks and tolas

(7) Recognition of simple Geometrical forms:—Straight lines; curved lines; a straight line as the shortest distance between two given points.

GRADE II.

(1) Numeration and notation up to 999.

(2) Addition and subtraction tables up to 20.

(3) Addition of two and three figure numbers in vertical and in horizontal columns, the sum not exceeding 999.

(4) Subtraction from any two or three figure numbers.

(5) Multiplication tables up to 10 by 10; meaning of signs × and ÷.

(6) Simple multiplication of numbers, the result not exceeding three digits.

(7) Short division of numbers up to three digits by numbers up to 9.

(8) Practice in measuring length and weight.

Tables of money: Rupee, anna, pice and pie.

Tables of weight: Panseri, seer, chhatak and tola or corresponding local measure.

Tables of length: Yard, foot, inch, hath, goondi, latti, kalli, etc

(9) Recognition of common geometrical figures Square, rectangle triangle and circle.

GRADE III.

(1) Numeration and notation of numbers up to 7 digits.

(2) Addition and subtraction to be continued. Practice in the processes and in problems of every day occurrence.

(3) Multiplication tables up to 16 by 16.

(4) Multiplication long, the result not exceeding 7 digits.

(5) Long division, by numbers up to 3 digits.

(6) Reduction (ascending and descending) in measure of money, length and weight.

(*a*) Rupee, anna, pice, pie.
(*b*) Yard, foot, inch.
(*c*) Seer, chhatak, tola.

(7) Simple problems in compound addition and subtraction.

(8) Indian system of writing:—
Rs.| as.| ps. and mds., seers and ch.

(9) Idea of fractions $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$.

(10) Construction by manipulation of concrete object and learning of the fractional tables of ¼, ½, ¾ up to 20.

(11) Recognition of angles.—
(acute, obtuse and right).

(12) Recognition of common solids:—
Cylinder, cone, sphere, cube.

(13) Tables of weight, length, capacity and time.
Seer, panseri, maund, kandi
Yard, pole, furlong, mile.
Local measures of capacity.
Second, minute, hour, day, week, month, year.

GRADE IV.

(1) Notation and Numeration complete.

(2) Four simple rules complete.

(3) Compound addition and subtraction.

(4) Compound Multiplication and Division.

(5) Rekha Bhinna, *i. e.*, addition, subtraction, multiplication, and division of Rs. as. ps. and Mds seers and chs. by the quarter system.

(*N. B.*—The division must be by a whole number and not by a fraction).

(6) Simple fractions of denominators, 10, 12, 14, 16 and 20.

(7) L. C. M. by factors of the above.

(8) Addition and subtraction of fractions of denominators given above.

(9) Comparison of British and Indian measures of weight: Pound, seer, ton, kandi.

(10) Guru (formulae for calculation) in connection with tables of measures learnt in the 3rd and 4th years.

(11) Book-keeping:—Keeping of stock-book for individual craft work.

(12) Square measure, area of a square and rectangle. In this connection students will learn how to draw:—

(*a*) a perpendicular to a given line.
(*b*) a parallel line to a given straight line.

GRADE V.

(1) Revision work in the four fundamental rules simple and compound.

(2) L. C. M. and H. C. F.

(3) Vulgar fractions complete (complex fractions to be avoided).

(4) Simple and compound Practice.

(5) Unitary Method.

Book-Keeping.

(1) Budgeting (Home, farm and festivals).

(2) Keeping of stock and record books (for individual and class work).

(3) Cash-Book and Ledger. (Cash transactions of goods and money relating to craft, school and home).

(4) Monthly statements of accounts. (Receipts and disbursement).

(5) Profit and Loss account, where no stock is left at the end of the year.

Practical Geometry.

(1) Calculation of areas:—
Triangle, parallelogram.

(2) Circle, ratio of the circumference to diameter, area of a circle.

(3) Field work, drawing areas to scale. Bigha and acre compared.

In this connection the student will learn how to make,

(*a*) an angle equal to a given angle.
(*b*) a triangle equal to a given triangle, rectangle or parallelogram and
(*c*) to find the centre of a circle or an arc.

GRADE VI.

(1) Reading and writing of decimal fractions.
(2) Addition, subtraction, multiplication and division of decimal fractions.
(3) The idea of approximation.
(4) Percentages.
(5) Simple Interest
(6) Profit and Loss.

Book-Keeping.

(1) Continuation of the work of Grade V.

(2) Transactions on credit and havalas.

(3) Trial Balance.

Practical Geometry.

(1) Calculation of areas, continued from the work of grade V. Field work in connection with Patwari measurements of fields, etc.

(2) Calculations of volumes of:—

Cube, cuboid, cylinder.

N. B.—This is to be taken in connection with earthwork, making of walls, digging wells, etc.

GRADE VII.

(1) Revision and extension of previous work.

(2) Ratio and proportion—rule of three.

(3) Time, work and speed.

(4) Simple equations representing rules and gurus for the calculation of areas, volumes, interest, etc.

(5) Graphs.

(6) Square root.

Book-Keeping.

(1) Trading account.

(2) Profit and loss account.

(3) Balance sheet.

Practical Geometry.

(1) Revision of previous work.

(2) Formulae for the calculation of areas, volumes.

(3) Drawing of areas to scale.

SOCIAL STUDIES

GRADE I.

I. The Story of Primitive Man.

How he satisfied his wants and developed the rudiments of civilised life.

(*a*) His shelter—(caves, trees, lake-dwelling, etc.).

(*b*) His clothing or natural protection—use of leaves, barks and skins, etc. leading gradually to wool, cotton and silk.)

(*c*) His means of livelihood—hunting, pastoral life and primitive agriculture.

(*d*) His weapons and tools—wood, stone, bronze and iron

(*e*) His means of self-expression—speech, primitive writing and drawing.

(*f*) His companions and help-mates—horse, cow, dog, etc.

N. B.—This account of the life of primitive man should be given in the form of stories and activities likely to appeal to children's imagination.

II. Life of Man in Ancient Times.

Ancient Egypt, Ancient China and Ancient India, to be given in the form of stories, *e. g.*,

(*a*) The story of a common slave building the pyramids of Egypt.
(*b*) The story of the first five Chinese Emperors.
(*c*) The story of a boy in Mahenjo Daro.
(*d*) The story of Shunah Shepa (Vedic period).

III. Life of Man in Distant Lands.

Arab Bedouins, Eskimos, African Pygmies, Red Indians.

N. B.—Much of the work can be done orally in the time allotted to the Mother Tongue, in the forms of stories and dramatisation.

IV. Training for Civic Life.

1. *Life of the child in the school.*

Civic training will be imparted through practical training aiming at the development of the following attitudes and habits:

(*a*) *Cleanliness and Sanitation.*
(i) Personal cleanliness (refer to the syllabus of General Science).
(ii) Cleanliness of clothes.
(iii) Proper use of latrines and urinals.
(iv) Proper use of waste-paper basket and dustbin.
(v) Keeping the class-room and the school cupboards clean.
(vi) Care and proper use of the school drinking water.

(*b*) *Social Responsibilities.*
(i) Proper greeting of teachers and schoolfellows.

(ii) Using of clean language.
(iii) Asking and answering questions politely.
(iv) Waiting for one's turn in speaking.
(v) Making use of the queue system.

(c) *Craft Work.*

(i) Proper use of craft materials and equipment.

(ii) Sharing materials and equipment with others.

(iii) Working in groups.

(iv) Waiting for one's turn.

(v) Leaving the class-room clean and replacing the material and equipment in proper order after work.

(d) *Games.*

(i) Fair play. (To refrain from cheating and deceiving).

(ii) To refrain from taking advantage of the weak.

(iii) Importance of truthfulness above all gain or victory.

(e) *Discharge of responsibilities.*

Besides the above-mentioned practical training every child should have some definite responsibility in the school life, either individually or as a member of a group. The following responsibilities are suggested for groups of children, between seven and nine years of age:

(i) Cleanliness of class-room.
(ii) Cleanliness of the school compound.
(iii) Care of the school drinking water.
(iv) Collection of leaves, flowers, stones, feathers, bark, wood, etc., for the school museum.
(v) Helping to decorate the school for festivals, etc.
(vi) Entertaining the school and the village.
(vii) Helping new students

2. *The Life of the child in his Home.*

(*a*) The home as an ordered community, and the part played by every member in this unit.

The place of father and mother in the home.
The place of brothers, sisters and cousins in the home.

The place of other relations in the home.
The place of the servants in the home.

(*b*) The child's place in the family, and his responsibilities towards the elder and younger members.

(*c*) The proper discharge of particular duties assigned to him in the home.

VI. Physical Training.

(*a*) Playground games and common village games requiring no special equipment.
(*b*) Imaginative and imitative games
(*c*) Rhythmical exercises
(*d*) Folk Dances

GRADE II.

1. *Primitive Life in Modern Times*:—*e. g.*, African aboriginies, Australian Bushmen, Ceylon Veddas, Indian aboriginal tribes.

2. *Life of Man in Ancient Times.*

Ancient Hebrews, Ancient Romans, Ancient India (the period of the Upanishads).

To be given in the form of stories *e. g.*

The story of Moses,—the story of Abraham.

The story of Marcus Aurelius and of Regulus the Roman.

The story of Nachiketa and Gargi.

3. *Life of Man in distant Lands.*

The life of an Afridi boy.

The life of a boy in a Swiss village.

The life of a boy in Persia.

The life of a boy in Japan.

N. B.—Much of the work under headings 1 and 2 should be included with the work in the Mother Tongue in the form of stories, reading material and dramatisation.

4. *Training for Civic Life.*

Observation of life in the village.

Food, clothing, housing, occupations, water-supply, the village bazar, places of worship, entertainments, fairs and festivals.

5. *Practical.*

Practical civic training under the following heads:—

(*a*) The child in his school.

(*b*) The child in his home.

Under these two heads there will be a continuation of the work outlined in the syllabus of—
Grade I.

(*c*) The child and his village.

(i) Keeping the immediate neighbourhood of the home clean.

(ii) Keeping the village roads clean (If possible, the children should put up simple dust-bins in different parts of the village, and persuade their family and friends to use them.)

(iii) Refraining from dirtying the village well.

(iv) Entertaining the village by participating in school celebrations.

(v) Kindness to animals.

6. *Physical Training.*

As outlined in Grade I.

Grade III.

1. *Life of Man in Ancient Times.*

Ancient India (Buddhist period), Ancient Persia.

Ancient Greece.

To be given in the form of stories, *e. g.*:—

Buddhist India:

The story of Buddha.

The story of Ashoka.

The story of Mahendra and Sanghamitra.
The story of a Buddhist Missionary in Central Asia or China.
The story of a student of Nalanda.

Ancient Persia:
The story of Kava, the blacksmith.
The story of the battle of Thermopylae.
The story of an Indian physician at the court of Darius the Great.

Ancient Greece:
The story of a Greek slave.
The story of Socrates.
The story of a young man taking part in the Olympic games.
The story of Pheiddipides (Marathan race).
The story of Alexander
The story of Megasthenes.

2. *Life of Man in Distant Lands.*

The story of a boy in New York.
The story of a boy in China.
The story of a boy in a Russian Kolhoz or collective farm.
The story of a boy in an Indian tea plantation.

N. B—Much of the work under headings 1 and 2 will be included with the work in the Mother Tongue in the form of stories, reading material and dramatisation.

3. *Study of the District* (including a guided tour of the district, if possible) with reference to:—Re-

lief, general features, climate, crops, industries, local historic monuments, means of communication, places of workshop.

N. B.—During this tour, the work should be elementary and general. It should be carried further and made more precise during the industrial survey of the district to be carried out during the fourth year

Practical Work.

(*a*) Important features to be filled in an outline map of the district.

(*b*) Making of Plans: Making plans of the classroom, the school building, the school-compound

4. *Study of the Globe*:
Shape of the Earth.
Land and water spheres.

5. *A study of the Village Community.*

(a) The village and its administration. The village officers. The village panchayat. Its functions.

(b) Village amenities—market, dispensary, post office, cattle pound, roads, playground, nearest railway station.

6. *Practical Work.*

(*a*) Organisation of a School Panchayat on the lines of the village Panchayat.

(*b*) Organisation of social service groups, (boys and girls between the ages of 9 and 12) for the following *Civic activities*:—

(i) Protection and cleanliness of streets and wells.

(ii) Protection of crops from destructive animals.

(iii) Organisation of games and amusement for children under 9.

(iv) Organisation of entertainments for the children and adult population of the village.

(v) Participation in national and seasonal festivals.

(vi) Preparations of posters, signs, etc.

(vii) Volunteer-work in village fairs, festivals, etc.

GRADE IV.

1. *The Story of Ancient Times.*

Ancient India, Buddhist China, Greater India, Early Christians.

1. *The Story of Ancient Times.*

(*a*) *Ancient India*:

The stories of Samudragupta, Kalidas, Aryabhatta, an Arab merchant trading in India, an Indian trader carrying his merchandise to foreign countries. Harshavardhana, Prithviraj, an Indian physician at Harun-ur-Rashid's court.

(*b*) *Buddhist China*:

The story of the Chinese pilgrims, Fahien and Hiuen Tsang

(*c*) *Greater India*:

The story of an Indian merchant or artist sailing to Java or Siam and settling down there for his work.

(*d*) *The story of Christ and the Early Christians*:

II. Study of Man's Geographical Environments:

1. *An Industrial Survey of the District*:

Practical. Preparation of a map of the industries of the district. Preparation of a "guide book" as a co-operative effort.

2. *Geography of the province* with reference to its natural divisions, climate, agriculture, industries, communications.

3. *Distribution* of hunting, fishing and forest occupations in the world.

Practical Work. A relief map of the province in clay or mud, as a co-operative effort, making of maps, charts, plans and diagrams.

4. *The story of the explorations of the World.*

Marco Polo, Vascoda Gama, Columbus.

5. Principal sea-routes of the world: India to Far East, India to Europe, India to Australia, India to Arabia and Africa, Europe to America.

6. *The various methods of ginning and carding* used at different times and in different countries (where spinning is the basic craft).

III. Training for Civic Life.

1. *A study of the town as an organised community,* with reference to the following points:—

(*a*) Relation to the village—their mutual interdependence—migration from village to town.

(*b*) The administration of the town—municipality—rights and duties of citizens—taxes, police, law courts.

(*c*) Social services · hospitals, child-welfare centres, libraries and reading rooms, post office, water-works, street lighting, playgrounds, akharas.

(*d*) Places of worship; Respect for all places of worship.

(*e*) Amusements and entertainment · Theatres, Cinemas.

(*f*) Centres of education: University, Colleges and Schools, Industrial Schools.

Practical Work.

A guided trip to the nearest town if possible.

2. *Study of Current events:*

through the daily reading of newspapers in reading circles—correlated with map-study in geography and with work in the Mother Tongue.

3. *Practical.*

(*a*) Organisation of self-governing units in the school on the principles of local self-government.

(*b*) Organisation of social service groups with activities outlined in the syllabus for Grade III.

(*c*) Celebration of national, religious or seasonal festivals.

(*d*) Organisation of newspaper-reading circles, and discussion groups on current subjects.

4. *Civic Activities.*

Continuation of work outlined for Grade III.

Grade V.

1. *The story of Muslim Civilisation in India and the World.*

(*a*) Life story of Prophet Mohammad with the social and geographical background of Arabia.

(*b*) Some heroes of early Islamic history: Omar, Ali, Husain, Caliph Abdul Aziz.

(*c*) The beginning of Muslim contact with India —Muslim travellers and merchants— Mohammad bin Kassim, Khwaja Moinuddin Chishti.

(*d*) The story of the development of Indo-Muslim culture (illustrated through concrete examples).

(i) Interaction of the Hindu and Muslim religions, through the story of Amir Khusro, Kabir, Guru Nanak, Akbar and Dara Shikoh.

(ii) Development of a common social life:—Food, dress, amusements, common festivals, social customs and etiquette.

(iii) Development of common political life and administrative system: Sher Shah, Akbar, Todar Mull

(iv) Language and literature:—Persian as literary and court language; Hindu writers and scholars of Persian, and Muslim writers and scholars of Sanskrit and Hindi; patronage of Sanskrit, Hindi and Bengali, etc. by Muslims; development of Hindustani as a common language.

(v) Arts; Music; Development of Indo-Muslim music: Amir Khusro, Tan Sen. Painting—Mughul, Rajput and Kangra Schools of Painting. Architecture—Kutub Minar, Fatehpur Sikri, Taj Mahal. Calligraphy and illumination of manuscripts.

(vi) Handicrafts: weaving, dyeing and printing, gold and silver smithy, lace-work, carpet-making, gardening.

(*e*) Life stories of the following personalities with special reference to the social conditions of their times:—Alberuni, Ibn-i-Batuta, Feroz Shah Tughlak, Babar, Chand Bibi, Nur Jehan, and some mystics and saints, such as Dadu, Kavir, Nanak, Baba Farid.

(*f*) Contribution of Islamic civilisation to the world—Ali (as a man and as a scholar); Balal (the negro democracy); Haroon-ur Rashid (patronage of learning); Salah-uddin (representative of Muslim chivalry); Abdur Rahman III (Moorish culture in Spain); Extent of the Muslim empire in the world (in correlation with Geography)

II. Study of Man's Geographical Environment:

1. Geography of India, with reference to its natural divisions, relief, climate, natural vegetation, crops, means of communication, industries, trade, population, political divisions and linguistic areas.

Practical Work.

(i) Maps, charts and diagrams showing different features of the geography of India.

(ii) Map of the world showing the extent of the Muslim Empire.

2. A study of the different regions of the World with reference to the following occupations: Commerce, agriculture and industries.

Practical Work: Maps, charts and diagrams.

3. Story of the discovery of the world: Livingstone; Cook, Peary, Shackleton.

4. A history of the spinning technique in India and other countries (to be taken during the craft period). Oral information, discussion and written composition.

III. Training for Civic Life:

1. Study of Current Events through:

(*a*) Group reading of newspapers.

(*b*) Editing a daily news sheet.

(To be taken in the language period).

2. A study of the district under the following heads:

(*a*) District and local boards and the public utility services as organised and controlled by them: agriculture, irrigation, co-operative organisations, sanitation, and public health, medicine and education.

(*b*) Administration: Administrative sub-divisions; the district officials and their duties; law courts and the police.

(*c*) Agencies of social service.

(*d*) Means for entertainment and popular education

3. Civic Activities:

Continuation of the work outlined in Grade IV.

Grade VI.

1. History of India with special reference to the modern period.

(*a*) The story of the disintegration of the Moghul Empire—Shivaji and the rise of the Marathas.

(*b*) The decline of Indo-Muslim culture.

(*c*) The story of the early European merchants, traders, soldiers and missionaries in India.

(*d*) The story of the British occupation of India.

(*e*) Ranjit Singh and the rise of the Sikhs.

2. The influence of the civilisation of the West on Indian culture to be studied with reference to the following aspects:—

(*a*) Religion.
(*b*) Social Life.
(*c*) Political and economic life.
(*d*) Language and literature.
(*e*) Education.
(*f*) Industries, Arts and Handicrafts.

N. B.—The approach to this study should be concrete, *i. e.*, through actual examples, not theoretical or philosophic.

3. A History of the Indian National Movement..

4. A History of the Textile Industry in India—its decay (to be taken in connection with the craft work).

II. Study of Man's Geographical Environment.

1. An outline geography of the main regions of the world with fuller treatment of Eurasia (to show the reaction of geographical conditions on the life and occupations of the people).

2. Recent explorations—Everest Expeditions, Russian Expedition to the North pole.

III. Training for Civic Life:

1. A detailed survey of the religious, social economic and cultural life of the village, to be carried out by the students under the guidance of the teacher.

2. Practical Work. As the practical expression of the survey, the organisation of a senior social service group, consisting of boys between the ages of 12-14 with the following activities as possible basic work:

(*a*) The systematic study of the region in the light of the economic and cultural needs of the people

(*b*) Sanitary and hygienic inspection of dwellings, village roads and wells, protection and cleanliness of the village drinking water, and village roads.

(*c*) Protection against flies, bed-bugs, malarial mosquitoes and other parasites.

(*d*) Gathering of medicinal herbs and their cultivation for local distribution.

(*e*) Organisation of popular lectures on health and hygiene

(*f*) Propaganda for preventive measures against infectious disease.

(*g*) Organisation of adult education in the villages—reading of journals and newspapers, organisation of kirtans, kathas and popular lectures Spread of literacy.

(*h*) Care of forests, groves and other natural beauty spots—care of old mosques, temples and other historical monuments.

(*i*) Propaganda against all forms of injustice in the village.

(*j*) Organising centres of craft training for the adult population of the village.

(*k*) Organising national and religious festivals. Organising entertainments and games for the children and adult population of the village.

Grade VII.

The Study of the Modern World.

1. Science in modern life—conquest of the forces of nature through scientific inventions and discoveries and their application to life:

(i) Development of the rapid means of locomotion-railways, motor cars, steam-ships, aeroplanes.

(ii) Development of the rapid means of communication of ideas—press, telephone, telegraph, radio, television

(iii) Development of modern industry—The Industrial Revolution.

(iv) Science and Public Health.

(v) Science and Agriculture.

(vi) Science in everyday life—food, clothing lighting, building.

(vii) Science and modern warfare: the misuse of power over nature.

(This aspect of modern history will be closely correlated with work in General Science).

2. The story of industrialism and imperialism in modern world.

(i) Growth of industrialism and capitalism in the countries of the West and the growth of the industrial civilisation.

(ii) Growth of imperialism as a result of industrial civilisation. Exploitation of races of Asia and Africa by the industrial nations of the West and by Japan.

(iii) The world war (1914—1918).

(iv) The story of socialism as a world force its development as a reaction against capitalism and imperialism. The story of the U. S S. R. as an experiment in industrial and socialist civilisation.

3. Democracy in the modern world

(i) The meaning of democracy.

(ii) Democratic institutions and communities in Ancient and Mediaeval India.

(iii) The story of the American Republic.

(iv) The story of the French Revolution.

(v) The development of present Indian constitution in outline—its limitations.

(vi) The story of the suppression of democracy in Europe.

N. B.—These topics should be presented and studied in simple and broad outline with the object of giving the student a proper orientation towards the modern world.

2. Current Events:

(*a*) The present international situation (in broad outline).

(*b*) Forces working for international justice and peace:

(i) The League of Nations, its activities and its failures.

(ii) Peace organisations.

(iii) The Satyagraha movement as a world force.

3. Outstanding Problems of Modern Indian Life:

(*a*) Social. Rural Reconstruction.
The problem of untouchability and the Harijan Movement.
Social Reform amongst Muslims.
The position of women in modern India.

(*b*) Political The history of the National Movement (continued). Indians overseas.

(*c*) Economic Decline of handicrafts and industries under British rule
The problem of poverty in India.
Revival of handicrafts under the Swadeshi and the Village Industries movements.
The beginnings of industrialisation in India.

(*d*) Language. Multiplicity of languages in India; the importance of Hindustani as the national language.

(*e*) Cultural. Movements for the revival of Indian culture and national education.

4. An elementary knowledge of the economic geography of the world, with special reference to the countries with which India has economic relations.

(To be initiated by the study of the village bazar or the district fair).

5. History of the technique of weaving in India and in other lands, (in correlation with the craft of spinning and weaving).

6. Practical activities. Continuation of the work laid down for grade VI.

GENERAL SCIENCE.

Grade I.

1. Naming and recognition of principal crops, trees, animals and birds in the neighbourhood.

2. Direction finding with reference to the sun; the seasons of the year; observation of changes due to change of season; effect on trees, plants, birds, insects, reptiles and man.

(*a*) The colour of trees at different times of the year; the falling of leaves; chief parts of a plant; recognising the difference between a leaf, a root and a stem; the bulbs as store-house of future nourishment; potato, onion.

(*b*) Insects fewer in winter than in spring and rain. Snakes during the rainy season. Where do they go in winter?

(*c*) Change in the clothing of man; how does clothing protect against cold?

3. We are surrounded by air at all times; air is a real substance; man breathes and lives in air; the air is in motion in the winds and in the school-room.

4. Sources of water (river, spring, tank, well); circulation of water; evaporation, sun, clouds, dew and rain; observations of loss of water through evaporation.

5. Fire must have air to burn; be careful with fire; don't run if clothing catches fire.

6. Developing habits of cleanliness; cleaning of the body; cleaning of the face, hands, nails and teeth; use of the datoon; cleaning of clothes; washing with various materials available in the villages.

7 Stories of how from the earliest time the world over, man has been observing the sun, the moon and the stars and utilising this knowledge for calculating time and finding out direction

Stories about farmers, travellers, sailors and generals of armies; how they have profited by the knowledge of astronomy.

The rising and setting of the sun and moon. The child is to be encouraged to observe that the same stars that set in the morning are to be seen to rise a little after sunset in the evening.

Phases of the moon; the bright and the dark half of the month; what they actually mean.

Observation of the next points of sunrise and sunset and the rays of light as they fall from the window on the wall opposite the winter solstice and the summer solstice (22nd December and 22nd June).

Finding the northern point by observing the Pole Star and the Great Bear.

Observation of the eclipses of the sun and moon if there are any during the year.

(Insist on observation by the pupils. Organise frequent excursions. Prepare pupils beforehand for possible observations).

Grade II.

1. Recognition of:
 - (*a*) General form and size,
 - (*b*) General form of the stem and bark,
 - (*c*) General form of the leaf,
 - (*d*) General form, size and colour of the flower,
 - (*e*) General form and size of the fruit and seed of at least five common trees of the neighbourhood.

2. Recognition as in *a-c* above of at least 10 vegetables and crops grown in the neighbourhood; knowledge of the time of sowing and harvesting and the period of germination

3. General appearance, mode of locomotion, food, and the call or cry of at least 4 domestic and 3 wild animals of the neighbourhood. Pond life; the frog and the fish; how they breathe; from the tadpole to the frog.

4. Birds, general form, size, colour; mode of flight, nesting and feeding; breeding season, size, form and colour of eggs of at least five birds usually

found in the neighbourhood; making a bird-fountain and a bird-table in the school-yard.

5. Observation that there is dust in the air; haze due to dust on a summer day; the dust-storm; beam of sunlight in a semi-darkened room; diseases caused by dust; how to minimise dangers due to dust.

6. Water—Its importance to plant, animal and human life; pure and impure water; common infections carried by water; the village-well.

(In 1—6 insist on direct observation, direct the pupils' attention to what he has to observe).

7. Practical directions as regards breathing through the nose; value of fresh air; healthy habits of sleep.

8. The day, the month and the year are not arbitrary units but they depend on natural astronomical phenomena.

The day caused by the earth's rotation round its axis; division of a day into 24 hours or 60 ghatis, the latter being a more natural unit

The Month caused by the moons' circling round the earth from full moon to full moon or from new moon to new moon, the month being made up of nearly 30 days.

The seasons:—winter, spring, summer, rains, autumn.

The eclipses of the sun and the moon. What causes them?

Grade III.

1. Plants require food, water and sunlight.

Comparative produce of equal plots with different manure, water and light provision.

Water dissolves substances; food of plants in solution; function of roots, stems, leaves, flowers and seeds.

2. Seeds and germination; at least 3 seeds, one from each of the following groups:

(*a*) maize, wheat, barley,
(*b*) pea, cotton, pulses,
(*c*) neem, castor.

(to show the difference between dicot and monocot seeds and that between hypogeal and epigeal cotyledons).

How seeds are scattered: by wind, animals, by force from the fruit, by water.

3. At least three domestic animals in more detail: the cow, the cat, the dog; how they care for their young.

Interdependence in nature; animals dependent on plants; man dependent on plants and animals.

4. Spiders and insects in the neighbourhood; recognition; their food, home and habits; house-fly; from eggs, larva or maggot; pupa to the fly; the breeding places of the fly; fly the reporter of dirt and the carrier of disease; how to get rid of the flies that infest the homes.

5. Experiments to show the difference between air breathed in and air breathed out; nature of combustion; importance of ventilation.

6. Pure and impure water; how to purify water, decantation, filtration, and boiling.

7. Cleanliness at home; disposal of night soil, cowdung and filth; their value as manures.

8. Wholesome food and healthy eating habits; proper sleep and exercises.

9. (Extended over Grades 3 and 4).

As in No. 7 of Grade 1 and No. 8 of Grade 2, but in greater detail.

The most important and characteristic constellations and their fancied shapes.

The students should be encouraged to observe and draw the figures of the constellations. They should be asked to make their own groupings of the stars.

Grade IV.

1 Plant physiology: leaves as organs of transpiration, respiration, and carbon assimilation.

Roots and their functions; root hairs, how water passes into the roots.

2. The Village pond; water-birds; their food, habits, songs; where and how they nest; their migration.

3. Insect life; the mosquito; from the wriggler to the mosquito; mosquito and health problems; where do mosquitoes breed; malaria and its prevention; loss to the village community due to malaria; the bee and the ant; the division of work and social organisation.

4. Spiders, scorpions and snakes; the characteristics of spiders; how to distinguish them from insects; utility to man; destruction of harmful insects.

Recognition of poisonous and nonpoisonous snakes; non-poisonous snakes as helpers of the agriculturists; first aid measures in case of scorpion and snake bite.

5. The three states of matter: water as solid, liquid and gas; distillation and condensation.

6. Experiments to show that air is a material, a gas occupying space; experiments to show that air has weight and causes pressure; experiments to show that gases, liquids and solids expand and contract with change in temperature, experiments to show how evaporation cools.

7. Human physiology: the respiratory and the circulatory system; common infections and contagious diseases: cholera, plague, small-pox and malaria; how produced; how to prevent their spreading.

8. See under No. 9 of Grade III.

GRADE V.

1. Continuation and recapitulation of plant and animals study, with reference to:—

(*a*) flower, its parts and functions,
(*b*) seed and fruit formation,
(*c*) dispersal of fruits and seeds,
(*d*) methods of vegetative propagation of plants (cutting, grafting, layering etc).
(*e*) insects and birds that help in dispersal of seeds,
(*f*) poisonous and non-poisonous snakes; symptoms of poisoning and first aid measures in case of snake and dog-bites.

2. Different kinds of food and their nutritive value; the digestion of food; the digestive system; what to eat; when to eat; the common drinking cup, its dangers.

3. Air: its composition; impurities; its purification; the function of trees in purifying air; air in a crowded room; methods of ventilation; draught; atmospheric pressure.

4. Water: composition, impurities; its purification; cholera, dysentry, typhoid and guinea-worm produced by impure water; precautions and safeguards.

Solution; solubility, saturated solutions, crystals.

5. Compass; magnetism, properties of a magnet.

6. Lightning and thunder, frictional electricity, simple voltaic cell.

7. Stories of eminent scientists, their search for truth.

8. The solar system:—the nine planets; the comets, the planets, their satellites, the rings of Saturn, the zodiacal light.

Geography of the moon; days when the moon is nearest to the earth and the days when the earth is nearest to the sun

Grade VI & VII.

1. A thorough review of work done in previous grades.

2. A study of the acids, alkalis and salts with examples from everyday life.

3. A comparatively thorough knowledge of the human body, its parts and their functions. The human body a fortress.

(*a*) Outer wall: the skin.

(*b*) Watchmen on the wall: Sense organs, sight, sound, smell, taste, touch.

(*c*) The Fort:

(i) Air—respiratory system.

(ii) Posters—circulatory system.

(iii) Food and its distribution—alimentary system.

(iv) Sewage—excretary system.

(*a*) Skin.

(*b*) Kidneys.

(*c*) Breath.

(*d*) Bowels.

(v) Defence—Bacteria.
(vi) Officers and Intelligence—nervous system.

4. Health education to be particularly emphasised during these two years; preservation and improvement of health as against restoration; the preservation of health as an individual and social duty; purity of life as a preservative of health; causes of ill-health; ignorance, carelessness, poverty, intemperance in food, drink, work and pleasure. Tuberculosis, leprosy: their causes, symptoms and prevention; the individual suffering and social loss involved; the need for individual alertness and social control to prevent diseases (the pupils during these two years should undertake an active health campaign in the village).

5. All pupils before leaving school should have acquired:

1. The daily bath habit,
2. The daily exercise habit,
3. The fresh air habit,
4. The moderation-in-all-things-habit,
5. The laughing habit

6. The story of the Earth and the story of the evolution of life to be told in simple outline.

7. The story of man's conquest of nature briefly and simply told. The story of the control of diseases. The story of communications and industries.

8. Simple mechanical appliances in the home; levers, pulleys and screw appliances; pendulum,

clock, work and working capacity; steam engine; internal combustion engines; acquaintance with magnetism and the magnetic field. The electric battery, the electric current, the electric bell.

9. First Aid to the injured: punctured wounds, cuts and bruises, burns, accidents to the nose, dog bite, snake-bite, fractures and dislocations; application of splints and bandages; foreign bodies in eye, ear and nose; drowning; artificial respiration; transport of the injured.

10 Lives of at least 5 eminent scientists and their "Experiments with Truth."

11. The Law of gravitation illustrated by the motion of the moon round the earth. The transit of Venus. The falling stars. Nebulæ.

Astronomical distance—(light years)—distances of the stars.

Stars of the first magnitude and their distances.
What is the Milky Way?
Shapes of the nobulæ.

The Calendar. The Solar and the Lunar systems of the calendar, intercalary month (Adhikmas); Pope Gregory's reform. The modern proposals for reform.

How to know the exact time of night or day by watching the position of the sun or the stars, the date by watching the phases of the moon, the month by watching the position of the moon in the constella-

tions, and the season from the particular stars that rule the nights.

How to find the direction from the stars.

Modern achievements. What is spectrum analysis? The observatories at Ujjain, Jaipur, Sekanderabad, Kodaikanal, Greenwich, and Mount Wilson. What is in the interior of the stars?

DRAWING.

Grade I.

Noting colours in relation to each other—red with green, yellow with black, recognising colour in flowers, trees, fruits and birds.

Correct names of the colours. Colouring of hectographed outlines.

Idea of form and relation.

Blue sky and green fields: with crayon and then cut in coloured paper.

Different shaped leaves to be traced and comparative form to be shown—pipal leaf, banana leaf etc.

Form of common vegetables and fruits, usually a large size (pumpkin, brinjal, carrot, melon, mango).

Memory drawing of objects seen around them with coloured crayons.

Note: Care should be taken to teach correct position and necessity for moving whole arm in drawing.

Grade II.

Drawing of objects connected with daily lessons. Illustrative representation to be usually in black or brown crayola, if possible with colours. Simple designs for borders with triangles, circles, semi-circles, simple flower units drawn or cut in coloured paper.

Landscape to be done with colour only—with river, trees, birds etc.

Drawing and cutting tree form with foliage.

Animals with their colours; common vegetables with foliage.

Practice for free arm movement and correct position.

Grade III.

Drawing of objects used in other lessons and in the home from memory.

Scenes from home life.

Practice in drawing of trees, houses and animals, using action lines.

Designing of borders with squares, oblongs and circles, colouring them differently, *e. g.*, orange, green and purple.

Blending of colours—red and blue, blue and yellow, in two tones of gray.

Grade IV.

Some landscapes, flowers, leaves and butterflies in colours.

The near and far relations in nature and object-drawing. The appearance of the near tree and the distant tree.

Drawing with the help of geometrical figures, flowers, leaves; in one colour and in several colours; complementary harmony and analogous harmony.

Decorative designs according to local tradition, (*e. g.* Rangoli, Alpona).

Mounting drawings on harmonising back-ground.

Sketching of children and animals in action. Action may be shown by match-sticks.

Posters illustrating some lessons in social studies or general science for group work.

Grade V.

Closer visual analysis and faithful execution should be insisted on here. Work done in previous grades might be repeated with greater thoroughness.

Proportion, arrangement, relation of objects, colour, values, massing to be carefully studied.

Standard tints, shades; warm and cool colours; colour charts; colour scale in nature drawings made.

A leaf in different positions, sprays of leaves, pods, in pencil, ink and colour (by throwing shadows on the walls).

Landscape for book covers, outlining masses with black.

Illustration of Social studies, science and literature lessons.

Pose drawing from children in action, and from animals studied.

Poster for a 'school day'.

Grade VI.

Continue work in object drawing and designing.

Make an animal book for children of Grade I to be presented to them on the occasion of some festival.

Make posters for some social service campaign in the village. (Group work).

Scale drawing; making of plane scales; the use of scales in the construction; reducing, enlarging and copying of plane figures.

Grade VII.

Continue work in object drawing and designing.

Make a book of 4 landscapes for children of Grade II, decorating the title page with a coloured design.

Make posters for some social service campaign in the village.

Plans, elevation and sections of solids in simple position.

Drawings and sections of objects to be made in the craft class.

The students of Grades I, II and III, should use only colours as far as possible; black and white may be introduced afterwards. Tracing from good pattern, and drawing pictures should be continued throughout the seven years (grades I to VII).

POSSIBLE CORRELATIONS WITH THE BASIC CRAFT OF SPINNING AND WEAVING.

The elements of the curriculum which we have recommended are closely correlated with one another because we have made an attempt to relate them integrally to the life and environment of the child. By making the craft the centre of education we are anxious to make the whole process of education real for the child by providing concrete learning situations for him. Therefore, the three central points round which we have built up the curriculum are the child's social environment, the child's physical environment, and the basic craft which connects him to both. We indicate below the possibilities of correlating the various items of the curriculum with the basic craft in each grade to show that a considerable amount of the subject matter to be learnt can be integrally related to the craft-activities of the child.

The numbers within brackets in the following pages refer to the items of the basic syllabus in the various grades.

It is unnecessary to point out correlations with the other two centres, *i. e.* the social and the physical environment because they are obviously covered by the syllabuses in social studies and general science.

Grade I.

Mathematics:

Counting of the number of rounds while winding the yarn on to the winder; counting of the slivers given out for spinning; the number of the accessories of spinning, such as taklis, winders.

An idea of the decimal system by counting the fingers of the hand, by arranging objects in groups of ten, *e. g.* taklis, winders, hanks of yarn; by forming boys on drill in lines of ten each and by giving out slivers for spinning in bundles of ten.

Addition tables can be constructed by keeping scores at spinning competitions, counting different objects and performing the operation of addition by arranging them in heaps

Subtraction tables by counting the slivers given over for spinning and left over after spinning is finished.

Measuring of thread and weighing of slivers given out for spinning will enable them to arrive at mathematical results, *e. g.* units of measures, lines curved and straight.

N. B.—Counting and writing of numbers up to 160 is needed in spinning and winding as 160 rounds

make a lati, 16 rounds a kali—1 round equalling 4 ft. a tar.

Social Studies:

Clothing of the primitive man and woman—use of leaves, bark and skins, leading gradually to the use of wood, cotton and silk. (I b.).

Dress of men and women in different lands—the Arab, the Eskimo, the African Pigmy. Dress in cold and warm countries. Cleanlines of clothes.

General Science:

Names and functions of different parts of the cotton plant, changes in the clothing of man with the change of seasons. How does clothing protect against cold and heat? Effect of humidity on carding and spinning. Morning time for the picking of cotton. Germination of the cotton seed.

Drawing:

Drawing of the cotton plant, cotton flower, cotton pod.

Mother Tongue:

Naming the various tools used in the craft, describing the various processes of picking, carding and spinning with the takli; harvest songs and folk songs connected with spinning.

Grade II.

Mathematics:

Acquaintance with bigger numbers in spinning and winding exercises as 640 rounds make a goondi.

Addition and subtraction tables by practical work in spinning and winding, by counting exercises in preparation of slivers and thread. Easy problems in addition and subtraction from practical work in spinning and winding.

Exercises in measuring and weighing in connection with the basic craft to be continued to introduce them to measures of length, weight and money, commonly used in the locality.

Multiplication tables to be constructed by students when counting in groups of ten, five and two.

Social Studies:

Dress of primite man and woman in modern times (1),

Dress in ancient times (2),
Dress in distant lands (3).

Clothing of different classes of people in the village, (too little—too much; swadeshi—foreign), styles of dress.

General Science:

Form and size of the cotton plant (II); stem and bark of the cotton plant; form of the leaf of the cotton plant; form, size and colour of flower of the cotton plant; the seed of the cotton plant; time of sowing and harvesting and the period of germination, (V). Cotton plug to prevent dust getting in.

Drawing:

Drawing the cotton plant, the cotton flower.

Mother Tongue:

Oral description of processes involved in the craft work. Reading matter to be provided should contain lessons on items mentioned above under Social Studies and General Science.

Writing of the names (nouns) of instruments used in craft and the processes (verbs) involved; writing short sentences about them.

Grade III.

Mathematics:

Numeration and notation in connection with

(*a*) statistics of the produce of cotton in the village, district, province and country, and figures of export of cotton and of import and export of cotton cloth.

(*b*) population of the village, the district, the province and India, engaged in the basic craft.

(*c*) the areas under cultivation: of cotton, wheat, etc.

(These will supply data for problems and exercises in addition and subtraction with bigger numbers).

Multiplication and division as the shortest way of performing addition and subtraction of equal numbers to be taken up by the distribution and by taking back of slivers, taklis, winders and bundles of cotton, by calculating numbers of objects required

for distribution and the numbers received from a heap by individual students.

Tables of weights and measures to be studied in actual exercises in weighing and measuring in the course of craft work.

A study of the Charkha to gain familiarity with common solids, *e. g.* cylinder, cone, sphere, etc.

The ideas of quarter, half and three quarters to be given to children practically, by making heaps of cotton, or cotton seeds.

Exercises in reduction (ascending and descending) can be taught by practical work in calculating wages of spinning per child, per class and per length of yarn spun per class

Social Studies:

1. Dress in Buddhist India, (dress of Bhikhus).

Ancient Persia and Ancient Greece. Beauty and simplicity of dress in ancient times (No. 1).

2. Description and significance of dress (under No. 2 dress for work, leisure and sleep).

3. Production of cloth in the village—approximate consumption per head,—quantity produced in the village and imported from outside (No. 3).

General Science:

Experiments with the cotton plants to illustrate germination of the cotton seed (No. I).

Dispersal of the cotton seed (No. II).

Dependence of man on cotton plant (No. III).

How to keep clothes clean—washing with various materials available in the village.

Drawing:

Drawing of dresses of primitive people.

Mother Tongue:

Oral description and discussion of craft process; silent reading of written instructions about the craft work.

Relevant reading material in the text.

Keeping a daily record of work done in craft

Grade IV

Mathematics:

The bigger numbers to be taken from figures of the occupational census and from statistics of production, export and import etc.

Calculation of wages earned in craft work will introduce the pupils to compound multiplication.

Simple book-keeping in connection with work in basic craft, keeping an account of materials used and goods sold.

Social Studies:

Indian trade in cloth in olden times (No. 1).

More detailed information about production, consumption of cloth in the village and the district (No. II: 1).

Centres of cloth-production in the district (II: 2).

The role played by cloth trade in Indian history; importance of trade routes from India to the West; the urge to find a sea-route (II: 5).

The number of producers of cloth in the village, in the district; number necessary to produce all the cloth required; variations of this number with the variations in the methods of production, textile mills, the migration from village to town, its extent, its dangers, need for planning (III: a).

General Science:

Experiment with cotton plant to illustrate No. I.

Experiment with cotton to show that air occupies the space between the fibres; carded cotton, increased volume of air in the intervening space; air, non-conductor of heat; lihaf and razai. (IV).

Drawing:

Posters and Charts to represent graphically information relating to crafts under Social Studies.

Mother Tongue:

Oral presentation and discussion of relevant information under social studies given above. Relevant reading material in the text book and in the books for supplementary reading (II: a).

Writing about relevant facts under Social Studies; descriptions of processes in craft and experiments in General Science; writing simple letters to elicit information from relevant centres like the

A. I. S. A., A. I. V. I. A.; the District Council or Village Panchayat (III: c).

Keeping a daily or monthly record of individual and class progress in the basic craft (III: d).

GRADE V.

Mathematics:

Practical problems in the calculation of wages, quantities of yarn spun, and yearly produce and expenses.

Practice method of calculation with reference to prices of yarn, cloth and wages.

Book-keeping to be continued by keeping detailed accounts of the work in the basic craft and the school co-operative shop.

Social Studies:

The simple dress of the Prophet of Islam; how cloth was produced in Arabia at that time; (I, a).

Indo-Muslim dress; (I, d, ii). Improvement in cloth-production; weaving, dyeing and printing; carpet-making; (I, d, vi). Chief centres of cloth trade (I) with a study of their climatic and geographical conditions; state protection and patronage; the land and sea-routes of cloth-trade; flourishing trade with the West; privately-owned and State factories.

The study of the different regions of the world with reference to the production of cloth, cotton and wool areas; (II, 4).

The whole of No. III.

Possibilities of organising sale of khadi-cloth on a co-operative basis; the organisation of its production and sale in the district; importance of khadi in the present economic life of India.

General Science:

Study of the cotton plant in greater detail as required under No. I.

Drawing:

Drawing of illustration for relevant information under Social Studies and General Science given above

Careful study of the cotton leaf and pod in general, pencil, ink and colour.

Mother Tongue and Hindustani:

A good deal of relevant reading matter can be provided in the text-book, and in books for supplementary reading

Letters to different organisations to elicit information about Khadi production and sales, about possibilities of co-operative organisation.

The keeping of necessary records of craft work.

Hindustani names of equipment and processes involved in the craft.

GRADE VI.

Mathematics:

Work in the school-shop as an introduction to problems of profit and loss.

Percentages of waste in the craft work.

Calculations of the volume of wood required for making charkhas etc. Volumes of cubes, cuboids and cylinder. Calculation of areas.

Social Studies:

The importance of cotton to the West; the whole story of the British occupation of India.

The cost of cloth required for durries, cost of making dresses.

The causes of the origin of the East Indies-Trade; first trade concessions; relation of European companies and the workers, the East India Company and the Indian merchants; the exploitation of the Indian peasant, worker and trader; the Industrial Revolution; competition with Indian trade; protection in England against Indian textiles (I, c, d).

The story of the Indian national movement; the Swadeshi Movement; Swadeshi under Gandhiji; Charkha and Khadi as symbols of Indian freedom; the economics of Khadi (I: 3). The whole of I, 4.

Organising centres of craft training for the adult population of the village.

Different kinds of cotton and its geographical distribution in the world; map work and collection of specimens of different kinds of cotton; climatic conditions favourable to the growth of cotton *e. g.* soil, humidity, temperature; the idea of geographic control; import and export figures relating to Indian cotton; cotton exports and imports from and to

different cotton-manufacturing and cloth-producing countries of the world (II).

The scramble for markets and raw materials; correlation with current events, *e. g.* the conquest of Abyssinia, Manchuria, China.

General Science:

Physical properties of water; its chemical composition and the mechanical devices for irrigation may be studied in connection with the geography of cotton; study of (I) with reference to cotton; insect pests; study of useful and harmful insects.

Drawing:

Posters for a campaign to popularise the use of Khadi; scale drawing in relation with craftwork.

Mother Tongue and Hindustani:

A good deal of very instructive and interesting reading material can be provided in the text book and the books for supplementary reading dealing with topics mentioned above under Social Studies and General Science. Composition work should also be closely correlated with the interests generated in connection with their craft and other work.

GRADE VII.

Mathematics:

The children should learn to understand the rates of interest charged and the method of the calculation of interest. Running of School Savings Bank will make the need of these calculations more

important. Practical problems in time, speed and work with reference to the basic craft.

Graphs in connection with the progress made by students in craft work and in other school subjects. Square root calculation in the making of cloth; The mutual relation of warp, weft, poonjam and hank.

Social Studies:

The effect of the Industrial Revolution on the textile industry (No. I, 1, iii).

Effect of scientific and technical developments on clothing (No. I, 1, iv).

The story of industrialism and imperial expansion as illustrated by the scramble for cotton growing areas and markets for textiles (No. 2, i and 2 ii).

The world War (2, iii).

Development of cotton areas. World production of cotton, cloth imports and exports (IV).

Different methods of producing cotton; individual and collective farming; land tenure systems (2. iv). Cotton growing in Egypt and the U. S. A. with reference to areas in the South—its association with slavery. The Civil War (3, iii).

History of the technique of weaving in India and other countries (No. V).

General Science:

Bleaching, dyeing and printing of cloth. Relevant portions about mechanical appliance with refer-

ence to the development of the spinning and weaving technique (No. VIII).

Drawing:

Drawings and sections of objects to be made in the craft class.

Mother Tongue and Hindustani:

As in Grade VI.